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ABSTRACT

This seventh in a series of nine learning modules on instructional management is designed to assist secondary and postsecondary vocational teachers in identifying and using classroom procedures to develop self-discipline in students, and in developing the type of environment which allows learning to take place. The terminal objective for the module is to assist students in developing self-discipline in an actual school situation. Introductory sections relate the competency dealt with in this module to others in the program and list both the enabling objectives for the four learning experiences and the resources required. Materials in the learning experiences include required reading, a self-check quiz and a model answer, class rules, a rules guidelines checklist, case studies, model critiques, and the teacher performance assessment form for use in evaluation of the terminal objective. (The modules on instructional management are part of a larger series of 100 field-tested performance-based teacher education (PBTE) self-contained learning packages for use in preservice or inservice training of teachers in all occupational areas. Materials are designed for use by teachers, either on an individual or group basis, working under the direction of one or more resource persons/instructors.) (SH)

ED149106

MODULE

E-7

Assist Students in Developing Self-Discipline

MODULE E-7 OF CATEGORY E—INSTRUCTIONAL MANAGEMENT
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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FOREWORD

This module is one of a series of 100 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and post-secondary levels of instruction. The modules are suitable for the preparation of teachers in all occupational areas.

Each module provides learning experiences that integrate theory and application, each culminates with criterion-referenced assessment of the teacher's performance of the specified competency. The materials are designed for use by individual or groups of teachers in training working under the direction and with the assistance of teacher educators acting as resource persons. Resource persons should be skilled in the teacher competency being developed and should be thoroughly oriented to PBTE concepts and procedures in using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based preservice and inservice teacher preparation programs to meet a wide variety of individual needs and interests. The materials are intended for use by universities and colleges, state departments of education, post-secondary institutions, local education agencies, and others responsible for the professional development of vocational teachers. Further information about the use of the modules in teacher education programs is contained in three related documents: **Student Guide to Using Performance-Based Teacher Education Materials**, **Resource Person Guide to Using Performance-Based Teacher Education Materials** and **Guide to Implementation of Performance-Based Teacher Education**.

The PBTE curriculum packages are products of a sustained research and development effort by The Center's Program for Professional Development for Vocational Education. Many individuals, institutions, and agencies participated with The Center and have made contributions to the systematic development, testing, revision, and refinement of these very significant training materials. Over 40 teacher educators provided input in development of initial versions of the modules, over 2,000 teachers and 300 resource persons in 20 universities, colleges, and post-secondary institutions used the materials and provided feedback to The Center for revision and refinement.

Special recognition for major individual roles in the direction, development, coordination of testing, revision, and refinement of these materials is extended to the following program staff: James B. Hamilton, Program Director, Robert E. Norton, As-

sociate Program Director, Glen E. Fardig, Specialist, Lois Harrington, Program Assistant, and Karen Quinn, Program Assistant. Recognition is also extended to Kristy Ross, Technical Assistant, Joan Jones, Technical Assistant, and Jean Wisenbaugh, Artist for their contributions to the final refinement of the materials. Contributions made by former program staff toward developmental versions of these materials are also acknowledged. Calvin J. Cotrell directed the vocational teacher competency research studies upon which these modules are based and also directed the curriculum development effort from 1971-1972. Curtis R. Finch provided leadership for the program from 1972-1974.

Appreciation is also extended to all those outside The Center (consultants, field site coordinators, teacher educators, teachers, and others) who contributed so generously in various phases of the total effort. Early versions of the materials were developed by The Center in cooperation with the vocational teacher education faculties at Oregon State University and at the University of Missouri-Columbia. Preliminary testing of the materials was conducted at Oregon State University, Temple University, and University of Missouri-Columbia.

Following preliminary testing, major revision of all materials was performed by Center Staff with the assistance of numerous consultants and visiting scholars from throughout the country.

Advanced testing of the materials was carried out with assistance of the vocational teacher educators and students of Central Washington State College, Colorado State University, Ferris State College, Michigan, Florida State University, Holland College, P.E.I., Canada, Oklahoma State University, Rutgers University, State University College at Buffalo, Temple University, University of Arizona, University of Michigan-Flint, University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Northern Colorado, University of Pittsburgh, University of Tennessee, University of Vermont, and Utah State University.

The Center is grateful to the National Institute of Education for sponsorship of this PBTE curriculum development effort from 1972 through its completion. Appreciation is extended, to the Bureau of Occupational and Adult Education of the U.S. Office of Education for their sponsorship of training and advanced testing of the materials at 10 sites under provisions of EPDA Part F, Section 553. Recognition of funding support of the advanced testing effort is also extended to Ferris State College, Holland College, Temple University, and the University of Michigan-Flint.

Robert E. Taylor
Director
The Center for Vocational Education



THE CENTER FOR VOCATIONAL EDUCATION
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The Center for Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning and preparation. The Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs



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INTRODUCTION

Obviously, the ultimate purpose of all your training as a teacher is to enable you to effectively instruct the students who will be in your classes. Teachers can be brilliant in their subject areas and conscientious in following good educational techniques, but if their students are not listening, all their preparation is wasted. This is where the concept of discipline comes in. In order for your classroom to be a productive place, an environment conducive to learning must be maintained.

The teacher is responsible for establishing this environment, either externally or by developing self-discipline within the students. Because this responsibility belongs to the teacher, some sources feel that the fault for any disciplinary problem lies more often with the teacher than with the students. However, according to Dreikurs, "If a salesman fails to overcome customer resistance, he is fired. If a teacher fails to overcome student resistance, the student is failed."¹ In other words, the failure of the teacher to maintain an environment conducive to learning is transferred, unfairly, to the students.



To be successful on the job and to get along well in society, all students must develop a reasonable pattern of self-discipline. This module is designed to help you to identify and use classroom procedures which will serve to develop in students the ability to discipline themselves, and to develop the type of environment which allows learning to take place.

¹ Rudolf Dreikurs, *Psychology in the Classroom: A Manual for Teachers* (New York, NY: Harper & Row Publishers, Inc., 1968), pp. 36, 37.

ABOUT THIS MODULE

Objectives

As a resource person in an actual school situation, assist students in developing self-discipline. Your performance will be assessed by your resource person, using the Performance Assessment Form, pp. 35-36 (Learning Experience IV).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the concepts of, and important considerations involved in, classroom discipline (*Learning Experience I*).
2. After reviewing relevant materials, develop acceptable standards of behavior for the vocational classroom and laboratory (*Learning Experience II*).
3. Given several case studies describing how hypothetical teachers handled classroom discipline problems, critique the performance of those teachers (*Learning Experience III*).

Prerequisites

To complete this module, you must have competency in developing a lesson plan. If you do not already have this competency, meet with your resource person to determine what method you will use to gain this skill. One option is to complete the information and practice activities in the following module:

- *Develop a Lesson Plan*, Module B-4

Resources

A list of the outside resources which supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions, or in assessing your progress at any time.

Learning Experience I

Optional

Reference Gray, Jenny *The Teacher's Survival Guide*. Belmont, CA Fearon Press, 1974

Reference Mager, Robert and Peter Pipe *Analyzing Performance Problems*. Belmont, CA Fearon Press, 1970.

Reference Madsen, Charles H. Jr and Clifford K Madsen *Teaching Discipline*. Boston, MA Allyn and Bacon, Inc., 1970.

Reference Buckley, Nancy K and Hill M Walker *Modifying Classroom Behavior*. Champaign, IL Research Press Company, 1970.

A resource person and/or peers with whom you can discuss classroom discipline

Learning Experience II

Required

School and district policy manuals to review

A safety handbook in your occupational specialty to review

A resource person to evaluate your written guidelines

Optional

An experienced teacher whom you can observe developing classroom policies with students

Learning Experience III

Required

3 peers to work with you in discussing and critiquing case studies (required only if you select this alternate activity)

Learning Experience IV

Required

An actual school situation in which you can assist students in developing self-discipline

A resource person to assess your competency in assisting students in developing self-discipline

This module covers performance element numbers 186-191 from Calvin J. Cotrell et al., *Model Curricula for Vocational and Technical Education Report No. V* (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1972). The 384 elements in this document form the research base for all The Center's PBTE module development.

For information about the general organization of each module, general procedures for their use, and terminology which is common to all 100 modules, see *About Using The Center's PBTE Modules* on the inside back cover.

Learning Experience I

OVERVIEW



Enabling
Objective

After completing the required reading, demonstrating knowledge of the concepts of, and important considerations involved in, classroom discipline.



You will be reading the information sheet, *An Introduction to Discipline*, pp. 6-10.



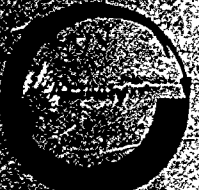
Optional
Activity

You may wish to read the supplementary references, Gray, *The Teacher's Survival Guide*; Mager and Pipe, *Analyzing Performance Problems*; Madsen and Madsen, *Teaching Discipline*; and/or Buckley and Walker, *Modifying Classroom Behavior*.



Optional
Activity

You may wish to meet with your resource person and/or peers to discuss the readings.



You will be demonstrating knowledge of the concepts of, and important considerations involved in, classroom discipline by completing the Self-Check, p. 11.



Feedback

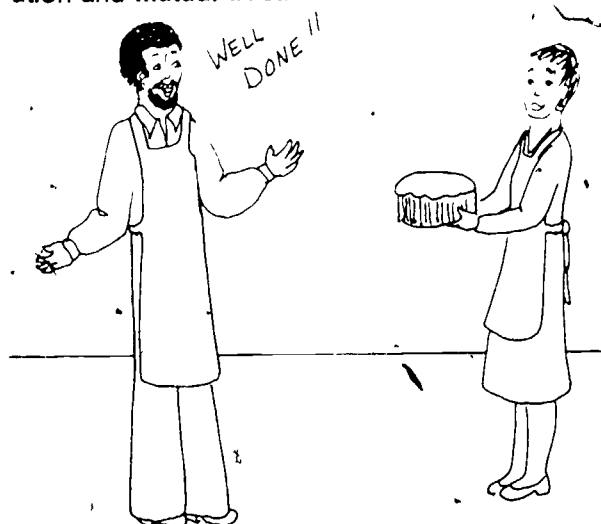
You will be evaluating your competency by comparing your completed Self-Check with the Model Answer, p. 13.

For information on discipline in teaching, preventive measures that can be employed to deter problems, and suggestions on how to handle problems that do arise, read the following information sheet:

AN INTRODUCTION TO DISCIPLINE

Discipline is far more than handing out punishments, however, the word "discipline" has some negative, limiting connotations generally associated with it. In the past, words such as "restraint," "repression," and "standardization," were considered to be synonymous with discipline. This conception of discipline assumed the existence of iron-handed teachers representing tradition who ruled through fear by their rules and artificial standards. The emphasis was on **penalties**. The students in this situation conformed to these external restraints with unquestioning obedience—quietly and passively repressed.

The contemporary concept of discipline entails creating an environment conducive to the development of **self-control** in students. Instead of repressing students' interests, the teacher is aware of individual differences and guides students' interests toward constructive ends. Standards in this environment are understood by the students, and the emphasis is on rewards rather than penalties. There is concern with developing good student-teacher relationships in a spirit of **cooperation** and **mutual trust**.



Unfortunately, this latter concept can also yield negative results if handled improperly. On occasion, teachers have interpreted this concept as meaning unlimited freedom. Freedom is not unlimited nor does it imply permissiveness. A classroom is a community of individuals and, as such, there need to be some freedoms, some respon-

sibilities—some open areas and some constraints—else there will be chaos to replace the old order of repression.

To reach the golden mean between repression and chaos, one concept with which you need to be familiar is **preventive discipline**: setting up an environment in which discipline problems will not occur. Don't expect this ideal state to ever materialize completely, but striving always in that direction as if it were possible can only be constructive; it can't hurt.

Preventive Measures

Most experienced teachers agree that the first week of school is the most important. If, during that time, you can establish firmly your expectations regarding rights and responsibilities, you're more than halfway there. Once control or order is established, you can always relax your control; if it is not established initially or if it is lost, it is extremely difficult to reestablish. Students almost invariably test new teachers. If you are firm, yet fair and consistent to begin with, they will probably cease to test you and you will probably not be retested at each new turn in the road.

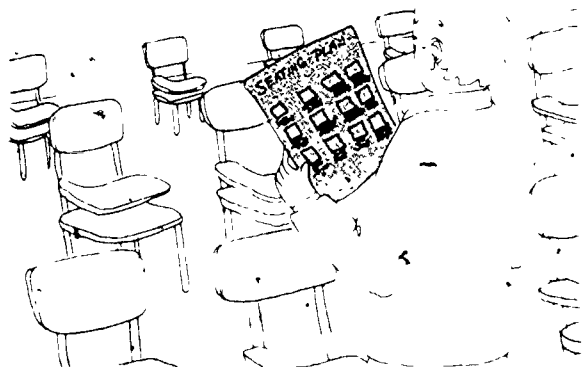
Knowledge and planning are two keys to a good learning environment. Before you ever step into that room full of students, you need to be well versed in your subject area (and to work to stay current in your field by reading or attending meetings). You need to know how learning occurs and you need to be thoroughly familiar with all school policies and regulations. You should also be aware of student peer group standards and behavior patterns. Teachers can easily misunderstand signals coming from students when they are not "tuned in" to the peer pressures students may be experiencing.

Not only should you yourself be well prepared; a well-organized classroom or laboratory is also needed to promote a good environment for learning. Have your room, equipment, and supplies ready and functional, and develop standards or routines for their use in normal and in emergency situations—a place for everything and everything in its place. Plan the laboratory so that students do not need to disrupt each other's work in order to

get tools or supplies. Space out the work stations so there is sufficient "elbow room."² Standardization of this sort provides security and minimizes tensions.

Plan to provide for physical comfort in your room. A room which appeals to the senses (attractive and interesting to look at, uncrowded, well lighted, well ventilated, not too hot or cold, etc.) will aid you in maintaining interest. You know yourself that if you're uncomfortable, your misery takes up all your thoughts and energies. Work to keep outside noise and laboratory noise as low as possible.

Have a seating plan prepared. You may not want



to have assigned seats all year, or your original plan may have to be changed as you know your students and their tendencies better. However, starting with a temporary seating plan serves two immediate purposes: it aids you in keeping control before you know your students, and it can aid you in learning your students' names quickly.

Knowing names is deceptively important. As long as a student knows he/she is anonymous, he/she feels more free to misbehave. Without names, the classroom is impersonal. Learning those names is an important step toward developing good teacher-student relationships.

Finally, have your lesson plans prepared and ready to go. Plan enough to fill the whole period. One of the easiest ways to encourage problems is to create a situation where students are either bored or idle. Get the class busy and active right away. Begin some form of laboratory work on the second day of the semester. Each day, get the class moving without delay. Use your material and your

personality to motivate and involve your students right from the start.

On that first day of class, get to your room early and greet students at the door. Begin class promptly and get students seated quickly according to your seating chart. Move around your class and be aware of what's going on, but don't get hung up on trivia. Keep a sense of humor. Find something pleasant to say to each student. Act as though you are anticipating a great year. Show enthusiasm for your subject. Tell students about some of the exciting and interesting things they will be doing.

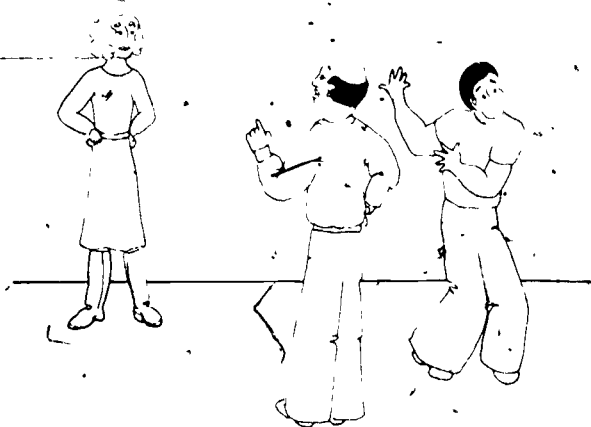
Cover school rules and your initial classroom standards, make sure students understand them, and be firm about your intention to uphold those rules and standards. Then, get moving on content matters relevant to your vocational service area (i.e., a lesson). Remember, before you start anything, make sure you have everyone's undivided attention first, and be sure any directions you give are clear. If students are not paying attention or don't understand what they are to do, their minds can turn to other, less constructive ways of filling their time.

Your knowledge of good teaching techniques will also help alleviate any problems which may tend to occur during those early weeks. In planning your lessons, vary activities, do not rely on just lecture or just discussion or just lab or just independent study. Watch students' attention spans, and be prepared to change your pace or technique if interest is waning. Use audiovisual aids where they are appropriate to enliven lessons. Since people work best at what they want to do, plan lessons which have students' interests in mind.³ This is not to say that you should teach only what they are interested in. Rather, your job is to **relate** your subject to student needs and interests where possible.

Knowing student interests and knowing how to deal with students is only possible if you know your students. Granted, classroom control needs to be fair and impartial, but you have a class made up of distinct individuals, and so "fair" and "impartial" become relative terms. Being very firm may be necessary with one student, another student may crumple under the same approach.

² To gain skill in organizing an effective laboratory, you may wish to refer to Module E-8, *Organize the Vocational Laboratory*.

³ To gain skill in identifying students' needs and interests and using this information to guide your instructional planning, you may wish to refer to Module B-1, *Determine Needs and Interests of Students*.



If you know all your students well and recognize their individual differences, you can use this knowledge to give each the motivation and encouragement each needs to develop a positive attitude toward your class. You can allot to all students the classroom responsibilities they can handle. You can know who your natural classroom leaders are and use them to help you accomplish your goals.⁴ Sharing classroom responsibilities and leadership with students can make your classroom a cooperative environment instead of a place where you call the plays, and then pray that the students bend to your will.

Knowing your students does not mean being able to label them. School records and fellow teachers can provide you with helpful information to orient you to your school and your students, but beware. It's easy to fall into the trap of listening to some well-meaning teacher who says you should watch John Jones very carefully as he's likely to be "trouble," or you shouldn't expect much from Charley as he's very "slow." Don't doom students from the start by labeling them, by predetermining their abilities or behavior. This results in the condition of "self-fulfilling prophecy": you expect students to misbehave, they know it, and they live up to your expectations.

On the other hand, if you truly do **expect** your students to cooperate and to produce, your expectations increase the chances of that happening. If students know you have respect and regard for them, they will hate to let you down. Know your students with more than just your head. Be yourself. Be human. Students are people, you are a person. People are not perfect. Be honest, frank, and **sincere**, and patient with their imperfections, and they'll be patient with yours. Again, the key concept is **cooperation**.

4 To gain skill in using appropriate techniques to gather information about your students, you may wish to refer to Module F-1, *Gather Student Data Using Formal Data-Collection Techniques*, and Module F-2, *Gather Student Data Through Personal Contacts*.

Self-Discipline

When you have gotten a good start on knowing your students and gaining their cooperation and confidence, it is time to take another step toward preventing discipline problems. You may have eliminated temptations, created a good environment, and taught only interesting lessons, but the emphasis is still on **you**, the authority, and on **external** control. Discipline is a joint effort. Your job is to create a situation wherein students are **self-disciplined**, self-directed as a group and individually.

One method for helping students learn self-discipline is to involve them in modifying or developing their own class rules. If they understand the need for a rule, and are involved in creating it, they will be more inclined to comply with that rule. Identify, with your students, areas where problems have been arising or might arise, and develop a rule covering that problem. Rules are not just applicable to such conditions as noise and horseplay. A vocational laboratory needs rules covering equipment, supplies, cleanliness, etc., and, above all, safety.⁵

Start with a few rules; don't overwhelm students with do's and don'ts. Any rule should be specific, short, and reasonable, and there must be a payoff. It is preferable to state rules positively and to stress reasons for obeying them (business and industry have rules—employees must abide by them), but students must be aware of the fact that there are consequences for failing to comply. These consequences can be decided by the group when they are preparing the rules.

These rules, when completed, should be posted and reviewed occasionally, not just when someone has broken one. If you work with the group to develop these classroom guidelines, chances are that the group will apply peer pressure to ensure that the rules are followed. Peer pressure can be much more effective than adult authority in affecting behavior.

Developing self-discipline in an individual student is not a clear-cut task with a ready-made formula. If students are **involved** in classroom proceedings and in their own learning, if they are given **responsibility** within the class, if they have a teacher whom they **trust** and with whom they wish to **cooperate**, and if they are encouraged to **think critically** and to **make decisions**, they have a sound basis for beginning to develop self-discipline.

5 To gain skill in directing activities in the laboratory, you may wish to refer to Module E-9, *Manage the Vocational Laboratory*.

It does not happen overnight. You don't teach self-discipline one day and expect it to exist the next day. It is something which develops continuously and probably slowly as a result of your attitude as a teacher and the environment you create. Think of your leg muscles. If you exercise them sensibly but rigorously every day, they will slowly develop. If you coddle those muscles and never use them, they will atrophy and become worthless. Likewise, if you smother students with your external control, through fear or love, they will have to rely on that external control to function.

They need to be slowly given the opportunities necessary to develop their own self-control.



When Problems Occur

In spite of all your positive efforts to prevent discipline problems from arising, and in spite of your efforts to enable students to discipline themselves, you will encounter problems. The following is a list of do's and don'ts to keep in mind when a discipline problem does, in fact, occur.

- Do remember that everyone makes mistakes
- Do remember what you know about the **individual** you're dealing with
- Do avoid sarcasm and ridicule
- Do keep your control, don't punish in the heat of anger
- Do use common sense
- Do find out all the facts from all sides before acting, when in doubt as to the facts of a situation, it's better to do nothing than to inflict an unfair punishment (but keep your eyes open for further clues)
- Do act as soon as trouble begins to show itself
- Do give the student an opportunity to save face
- Do use peer pressure to move the student into positive behavior before he/she seriously misbehaves

- Do reprimand in private
- Do reject the behavior, not the person
- Do consider the student's feelings
- Do remember that behavior is caused, so don't just curb the behavior, work on the causes (i.e., fear, resentment, insecurity, or a need for attention or affection)
- Do focus on students' strong points, don't just list their errors, you can't build on weaknesses, only strengths
- Do be consistent and fair in your discipline
- Do your own disciplining except in exceptional cases or cases where the school code requires you to refer the case to the office (e.g., fighting), if a student is sent to the office to be disciplined, it does not improve your classroom control, only you can do that
- Do admit an error when you make one
- Do drop the subject once it is settled, don't hold the experience up to the student forever after
- Do be always on the lookout for new, more effective ways to handle a particular situation
- Don't take poor behavior personally
- Don't threaten—a threat can become a dare and a student may take you up on it
- Don't promise anything you can't or won't carry out
- Don't argue—arguments are not rational and not only will it worsen what is already a problem situation, but you'll lose—maybe not literally, but in terms of control and poise, you will be the loser
- Don't bluff, students may call you on it
- Don't make deals or bribes, those are tricks, not techniques, and students catch on quickly
- Don't give in just to be popular, you won't be
- Don't create situations, unrealistic demands on your part force students to defy you
- Don't preach, act, repeating what was known but not obeyed does not change a thing
- Don't punish yourself in the process, if you enforce a punishment which obviously is inconvenient for you, the student may gloat over his/her success and try it again
- Don't assign school work as a punishment, you're merely creating or reinforcing the idea that school work is, in fact, something negative and painful
- Don't force apologies, you're merely encouraging the student to lie
- Don't punish the whole group when you can't find out who the real culprit was, this is unfair and students will not respect you for it
- Don't resort to corporeal punishment, its corrective effect on behavior is short-lived, its negative effect on developing a cooperative student-teacher relationship can last a long time

Two final points. (1) In spite of the emphasis on "punishment" in this last section, remember always that your ultimate goals are **cooperation**, **productivity**, and **self-discipline**. Whenever you are considering what to do in the face of a broken rule, make sure that your action does not ruin your

chances of attaining those goals. Again, be **firm**, but **fair**, and try to accentuate the positive.⁶ (2) Remember that there are **district** and/or **school policies**. Your plan of action must always comply with these policies.

6 To gain skill in employing a variety of reinforcement techniques to encourage desirable behaviors and discourage undesirable ones, you may wish to refer to Module C-13, *Employ Reinforcement Techniques*.

For further information relating to classroom discipline, you may wish to read the following references:

- Gray, *The Teacher's Survival Guide*, a practical handbook of ideas about managing the learning situation. It identifies common discipline problems and types of students in need of help in developing self-discipline.
- Mager and Pipe, *Analyzing Performance Problems*, which defines and examines the cause of "performance discrepancy."
- Madsen and Madsen, *Teaching/Discipline*, a teacher's guide in the use of behavioral principles relating to classroom discipline and subject matter presentation.
- Buckley and Walker, *Modifying Classroom Behavior*, a semiprogrammed text which outlines basic principles of behavior modification, and applies these principles to classroom behavior.



You may wish to meet with your resource person and/or peers who are also taking this module. In this meeting, you could (1) discuss the readings, and (2) share discipline problems and solutions from your personal experiences—e.g., you might select some of the "Do's and Don'ts" on p. 9 which you know to be true because you have been in a class in which a teacher did or did not follow the advice. Then, you could describe what the teacher did and the consequences of that action in terms of student reactions and/or classroom discipline.

The following essay question is designed to check your comprehension of the material in the information sheet, An Introduction to Discipline, pp 6-10. Please respond fully, but concisely.

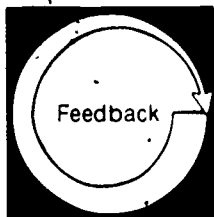
SELF-CHECK

You are sitting in the teacher's lounge, when a first-year teacher comes storming in, obviously upset, and announces that his students are "animals who belong in cages." Apparently he has just spent another class period trying, without success, to keep some kind of order in the classroom. He has yelled, threatened, given extra homework assignments as punishment, sent students to the office—all to no avail. "That's what I get for trying

to be friends with them in the beginning, all they understand is force. From now on anybody who acts up is going to get kicked out of class. I wash my hands of them."

If this teacher asked you for some advice, what would you say? How do you think this situation was created? What can the teacher do now to improve classroom discipline and ensure that learning takes place?

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Compare your written response on the Self-Check with the Model Answer given below. Your response need not exactly duplicate the model response, however, you should have covered the same **major** points.

MODEL ANSWER

The inconsistencies in this teacher's statements provide a clue to why discipline broke down in his classroom. On the one hand, he sounds like a storm trooper, relying on punishment and force to bend students to his will. Yet, he says that he tried "to be friends with" his students. What probably happened is that as a new and inexperienced teacher he tried, initially, to be a "good guy," to be popular with his students by avoiding the setting up of necessary rules and constraints. Apparently he did not establish, early in the year, the control or order within which freedom can be exercised constructively. His students took advantage of his permissiveness, and he has now compounded the problem by behaving inconsistently.

His students probably also picked up on his basically negative attitude toward them, revealed in his labeling them "animals." It sounds as though, for all his early attempt to be "friends" with them, he really does not like or trust students, may even be somewhat **afraid** of them. He probably **expected** misbehavior, and his students sensed it and lived down to his expectations. The methods he used when trouble arose were bound to turn his

classroom into a battle zone. Even if they had worked in terms of repressing students, they were certainly not designed to enlist students' **cooperation** in creating an environment in which self-discipline could be developed.

At this point, this teacher needs to start over with his students. It won't be easy, but it can be done if he stops treating his students like "the enemy" and asks for their cooperation in setting up some basic rules, rights, and responsibilities which everyone understands and accepts. He needs to establish, with them, the limits within which everyone (including the teacher) will operate in the classroom, and he needs to insist firmly, fairly, and consistently that those standards be upheld.

In time, if he truly expects his students to behave like responsible people and creates an environment in which this is possible, he will win their respect (if not a popularity contest), and their trust. When problems do arise, they can be handled swiftly and fairly according to the guidelines students themselves were involved in developing, and the classroom will once again be a place where learning can occur.

LEVEL OF PERFORMANCE: Your completed Self-Check should have covered the same **major** points as the model response. If you missed some points or have questions about any additional points you made, review the material in the information sheet, An Introduction to Discipline, pp. 6-10, or check with your resource person if necessary.

100

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Learning Experience II

OVERVIEW

Enabling
Objective

You will be reviewing relevant materials developed under the direction of the teacher for the vocational classroom and laboratory.

You will be observing and reading copies of the classroom and laboratory policy manuals from (1) a school in which you are working or (2) your resource person.

Activity

You will be reviewing the Class Rules, p. 15, and a school handbook in your occupational specialty.

Expected
Result

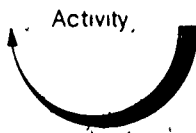
You may wish to observe an experienced teacher in your occupational specialty who is developing classroom policies with a group of students in an actual school situation.

Competency

You will be preparing a list of classroom policies and procedures to maintain acceptable standards of behavior in the vocational classroom and laboratory.

Assessment

Your competency in developing acceptable policies and procedures for the vocational classroom and laboratory will be assessed by your resource person using the Guidelines Checklist, p. 19.



Obtain copies of the school and, or district policy manuals from either (1) a school in your community, (2) a school in which you are working, or (3) your resource person. Review these policy manuals for their guidelines for acceptable behavior in the classroom and laboratory.



Review the following Class Rules, and a safety handbook prepared for your occupational specialty.⁷ The sample rules are intended as suggestions for the kinds of guidelines you will be developing, and the safety handbook will serve as a reference in preparing guidelines for standards of behavior in the laboratory.

CLASS RULES

1. **CLASS**—Enter class **on time** and in an orderly manner. Take assigned seat and gather together the papers and materials necessary for the class. If the teacher is ever detained in getting to class, maintain order until he/she arrives. During a normal class period, **raise your hand** and wait to be called on if you wish to contribute.
2. **CLASS WORK**—In-class work, rough drafts, and tests are to be done, in most cases, in **pencil**. Final reports and that type of written assignment are **double spaced**, done in **rough draft** first, and then in **final form in ink**. Obviously, you will be always responsible for having pencil, paper, and pen in class.
3. **FOLLOWING DIRECTIONS**—In doing an assignment or correcting it, listen to my directions and follow them. **Points will be taken off** for not following directions. When a corrected paper is returned to you, **check it**. You are responsible for your own paper.
4. **HOMEWORK**—On the day an assignment is due, it is to be passed in **when** I call for it. You either have it or you don't. If you think you have a valid excuse for not having it, **see me after** class. If you can't hand it in when I ask for it, it is an "F." You have one day to make it up. This does not erase the "F," merely counteracts it. People who were absent are responsible for finding out from me what they need to make up.
5. Familiarize yourself with the **location** and **checkout procedures** for the materials and equipment in the room. When you are done using these items, **return** them to their proper places in good condition.

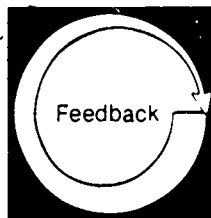
⁷ To gain skill in developing your own safety handbook, you may wish to refer to Module E-5, *Provide for Student Safety*.



You may wish to arrange through your resource person to observe a teacher in your occupational specialty who is developing classroom policies with a group of students. Pay particular attention to the degree to which students are involved in establishing the rules (i.e., does the teacher dominate the session?), and whether the students seem to understand the need for each rule and the consequences for disobeying them.



Prepare, in writing, a tentative list of guidelines you feel are necessary to maintain acceptable standards of behavior in the vocational classroom and laboratory. Remember that your rules and procedures should be consistent with the school and/or district policies you reviewed. (In an actual school situation, you would be reviewing and discussing these guidelines with students to get their input and acceptance. Thus, you should consider the guidelines you develop here to be **tentative**.)



After you have developed your guidelines, arrange to have your resource person review and evaluate your guidelines. Give him/her the Guidelines Checklist, p. 19, to use in evaluating your work.

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GUIDELINES CHECKLIST

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

LEVEL OF PERFORMANCE

	N/A	No	Partial	Full
1. Rules were established for standard classroom procedures (e.g., raising hand before speaking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Rules were established for standard laboratory procedures (e.g., responsibility for cleaning up)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Emergency procedures were established	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. These rules and procedures were consistent with school and district policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. The rules were stated in short, specific, positive terms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. The rules were reasonable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. The completed list of rules was not so extensive that it was overwhelming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

LEVEL OF PERFORMANCE: All items must receive N/A, or FULL responses. If any item receives a NO, or PARTIAL response, review the material in the information sheet, An Introduction to Discipline, pp 6-10, and the readings in this learning experience, revise your guidelines accordingly, or check with your resource person if necessary.

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Learning Experience III

OVERVIEW



Enabling Objective

Given several case studies describing how hypothetical teachers handled classroom discipline problems, critique the performance of those teachers.

NOTE: The next two items involve critiquing 11 case studies in writing. If you prefer, you may work with peers in discussing and critiquing the case studies.



Activity

You will be reading the Case Studies, pp. 22-28, and writing critiques of the performance of the teachers described.



Feedback

You will be evaluating your competency in critiquing the teachers' performance in handling classroom discipline problems by comparing your completed critiques with the Model Critiques, pp. 29-31.

NOTE: The following activities involve critiquing 11 case studies. If you prefer, you may work with peers in discussing and critiquing the situations described.



The following Case Studies describe how several teachers handled problems arising in their classrooms and laboratories. Read each of the case studies, and **critique in writing** the performance of the teachers described. Specifically, you should explain (1) how the problem was created, (2) what errors were made in handling the problem, and (3) what would have been the proper preventive and/or corrective discipline in each situation.

CASE STUDIES

1. On the first day of class, Ms. Gilmore gave her students a detailed rundown of the standards she had set for her class. One thing she said was that since only advanced students were capable of A or B work, and since this was an introductory class, no grades higher than C would be given.

During the first few weeks of school, a group of students in this class consistently refused to work. They would not answer when questioned, they turned in no homework assignments, their test papers were handed in blank. Ms. Gilmore tried all sorts of punishment, but no matter what she threatened, the students would not participate. Finally, she informed them publicly that since they were only physically in her class anyway, she would recommend that they see the guidance counselor and drop the course.

2. Mr. Reagan was sick and tired of making assignments which would prepare students for a given lesson, and then having students coming in unprepared. Therefore, the next time this happened, he gave a surprise test and informed his students that it would count heavily on their final grade average. Some of the students had read the material, but since it was new, they had not done well on the test either. They protested vigorously, but Mr. Reagan replied that if they'd read it carefully, they could have passed, and that if they kept protesting he'd lower their test grades ten more points.

3. Danny could not sit still. He was eternally clicking a pen, or drumming on the metal side of his chair rhythmically, or kicking the chair in front of him. Ms. Harris had told him day after day that she **knew** he didn't realize that he was doing it (he really didn't), but that it was distracting to her and to the rest of the class, and that she wished he'd stop it. Finally, in desperation, she had him stand in the aisle, **keep** both feet on the floor, and hold his books for the remainder of the period. She told the class, "This is a sure way to force him to keep his hands and feet still, maybe that way we'll get something done."

4. Ms. Lewis knew her students quite well. She knew when something went wrong who were the likely candidates to have been involved. Someone in her first period class had a habit of removing the typewriter platen before class, whenever the chance arose, and hiding it. When the next class came in, the platen would have to be found before class could begin. With everyone searching for the platen, class was chaotic for a while. Ms. Lewis was pretty sure that it was Mac that was doing it.

One day, she walked into class right before second period and there was Mac playing with the platen release buttons. He claimed he was just fiddling around while he waited for a friend who was in her second period class that he had to talk to. She knew better. As punishment, Mac had to stay after school for one-half hour each night for a week and do typing speed exercises.

5. Mr. Wilhite's classroom and woodworking lab were right next door to each other with a door between them. The door had a large window, so that when Mr. Wilhite was in one room, he could watch what was going on in the other room. One day while he was in the classroom, he happened to glance through the window to check the progress of the students in the lab. Clyde, a notorious goof-off, had finished early and was now feeding small wood blocks into the back of the power saw to see how far they'd shoot across the room. Mr. Wilhite rushed into the lab, grabbed a 2 x 4 and let go with one powerful blow to Clyde's posterior.

6. At every staff meeting the principal would mention that the grounds outside Mr. Fair's windows were badly littered. What was happening was, that warm weather had begun, the windows of the classroom were open, and the row of students nearest the window were amusing themselves by sailing paper out the window when the teacher's back was turned. Mr. Fair didn't like being singled out at teacher's meetings as being unable to control his students. Therefore, he told his students that the next time litter appeared outside the windows, the windows would be kept shut for a week, no matter how hot and stuffy the room got as a result.

7. Mr. Finch had an excellent rapport with his students, and his lessons were well prepared and interesting. One day, the students were discussing the progress they were making on their 4-H projects. The members of the group, with Mr. Finch observing, were also bringing up any project problems and then the group was brainstorming for solutions.

Tommy was really excited about his garden project which had been going perfectly until two days before when some sort of insect had started to attack. When Tommy was describing the insect, he inadvertently used a strong four-letter word. This was contrary to room standards which stated that no vulgar language was to be used in the classroom. He paused and glanced at Mr. Finch who merely nodded and indicated for Tommy to go on with his explanation.

8. The students in the home economics lab were busily preparing fudge. As Sally Ann passed the gas range she hit the handle of Sarah's pan (which was sticking out) and knocked the pan to the floor. Sally Ann sustained a nasty burn on her shin and the fudge made a rapidly hardening mess on the floor. The teacher, Mr. Kester, was furious. Several students were scurrying around trying to find something to clean up the mess, others were trying to butter Sally Ann's leg, others were suggesting that ice should be used, and meanwhile, the empty gas burner was still on.

Mr. Kester demanded to know why Sarah had been so dumb as to leave a pan handle extending out from the range. "Are you totally lacking in common sense? You should know better," he shouted.

Sarah was close to tears. Sally Ann wasn't far behind. Sarah choked out, "You never told us not to do that."

At that point Mr. Kester really exploded. Pointing his finger at her he said, "Don't talk back, and besides, I shouldn't have to explain such basic things to you."

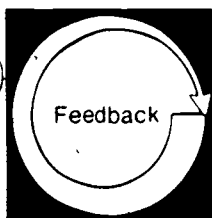
9. During the showing of a movie related to the lesson being taught, Melvin kept up a constant nudging battle with Dan. It was dark in the auditorium, so it was hard to see, but Mr. Taylor, the teacher, knew who the troublemakers were. However, it was still early in the year, so he didn't know their names unless they were in their regular classroom in their assigned seats.

Rather than create a commotion himself by trying to get them to respond to "Hey you's," Mr. Taylor waited until the end of the movie and then grabbed them on the way out. He told them that since they obviously didn't know how to behave during a movie, they would have to sit in the office during the one being shown the following week. This meant, he said, that they would have to get the information given in the movie some other way on their own.

10. On the day that the home economics students were supposed to practice making French seams on their sewing machines, two of the machines failed to function. The teacher, Ms. Crook, solved the problem by doubling up two students and had them take turns doing their work. The idle students started chattering, which disrupted the other students.

11. As part of a unit on the printing process, Mr. James made plans for his printing class to visit the local newspaper to see their presses in action. Mr. James told the students they were going and arranged for transportation. During the field trip, Mr. James stayed up front with the guide so he'd be sure to hear everything the guide was saying in order to be able to have a good follow-up discussion when they returned to school.

After school that day, Mr. James got a call from the newspaper office. The man informed him that after the field trip, some pieces of type and a portable clock from a desk had suddenly come up missing. Mr. James was partly disappointed that his students would do that to him, and partly angry that he had been made to look bad. He told his class that they would all stay after school nightly for an hour until the guilty parties confessed or someone turned them in.



Compare your completed written critiques of the Case Studies with the Model Critiques given below. Your responses need not exactly duplicate the model responses, however, you should have covered the same major points.

MODEL CRITIQUES

1. Ms. Gilmore was responsible for the problems in her classroom. She set up a situation in which she represented authority, and students had no choice but to be in an opposing camp. They were never involved in establishing any procedures, and her unfair grading system substantially killed any motivation.

Faced with mutiny, she used all **negative** actions to stifle it. She **threatened** and she **punished**. Since she wasn't tackling the **problem**, but the **results** of it, this could only serve to make students less cooperative than ever.

She humiliated the group of mutineers publicly. This is never a good idea, but considering the way she's handled her students thus far, it is probable that the class would identify with the mutineers. Thus, when she humiliated that group, the class could only **dislike** her further.

She did not remedy her error, nor change student behavior, she merely removed the group physically from her class. The students who remained are unlikely to be very cooperative.

Finally, she placed the guidance counselor in an awkward position. She's giving him a discipline problem and a teacher-student relations problem which she should be handling herself, and she's almost making it seem like an academic problem, which it isn't.

2. It's hard to say who created the problem. It could have been that the students did not understand the purpose of doing the assignments, or that the assignments were boring. Or, it could be that the students were just lazy.

However, evidently Mr. Reagan smoldered silently. He did not discuss the problem with the class to determine its source, nor did he let them know that he had reached the end of his rope. His "solution" was not consistent with his past behavior, and it tends toward being more of a revenge or punishment tactic than a positive move toward solving the problem. His tactic was also unfair. It did not convince students of the **reasons** for doing homework. It

taught them that a teacher's power can be arbitrary and unpleasant.

It punished the students who had complied as well as those who hadn't. It is unlikely that the students respect Mr. Reagan at this point, and that's not a good basis for a cooperative environment.

3. Danny was creating a problem, but he evidently didn't really mean to, and could not discipline himself to stop.

The action Ms. Harris took could be mortifying to Danny, distracting to the class, harmful to her relationships with her students, and, in some school districts, considered to be "cruel and unusual punishment." Most important, it is doubtful that her action would have any lasting effect on Danny's habit.

She should have worked with Danny privately to get him to recognize his habit. If the problem was more deeply rooted in other causes, perhaps she could have referred Danny to a guidance counselor or school psychologist.

4. We don't really **know** who caused the problem and therein lies the problem. Ms. Lewis does **not** have positive proof, and that's not a good time to act. Her punishment is rather severe considering her lack of proof. It's possible that this punishment inconveniences her also, but we don't know that for sure. However, we do know that it's not a good idea to assign schoolwork as punishment.

Considering her knowledge of the original misdeeds, perhaps Ms. Lewis should have monitored her room more closely during the times when the problems had been happening. Or perhaps, she should have discussed the problem with her students and asked them for suggestions. However, she should have held off on punishing Mac and looked for further proof.

5. Mr. Wilhite was contributing to the problem by failing to adequately monitor his rooms. This may have been a situation caused by schedul-

ing, but if an accident had occurred in the lab in his absence, his problems could have been worse. The fact that Clyde was "a notorious goof-off" further indicates that he should not have been left in a lab unattended.

Mr. Wilhite took a big chance acting as he did. If he has a good relationship with these students, it is possible that the class will realize the danger which existed and which caused him to act as he did. Clyde may even realize that he deserved it, and the shock of the "paddle" may cure him. However, the hazards of the method are numerous and it could be dangerous. Acting based on an emotional response is far less desirable than waiting until you have calmed down. Corporeal punishment is not a good technique, especially not in public. In this case the student could have been accidentally injured (or could claim to be). Many school systems and some states expressly forbid such action. In such cases, a teacher using corporeal punishment makes himself/herself subject to legal action by parents.

What Clyde did was potentially dangerous and needed to be remedied immediately, but it would have been better to choose a less physical, more private method. Furthermore, if Mr. Wilhite's relationship with his students was not good, or not established, his "paddling" would probably injure it further.

6. Actually, Mr. Fair is causing the problem by failing to adequately monitor his students, particularly since he is aware that the problem exists. Further, he has obviously not established self-control in his students.

Instead of discussing the problem with his students, he has threatened them. His threat, furthermore, is physically cruel. By shutting his windows in hot weather, he is punishing himself and the innocent as well as the guilty students. It may succeed in "teaching them a lesson," but undoubtedly little learning will take place in that uncomfortable environment. Finally, he is setting up a situation where **another** class could throw the litter outside his window to get his class in trouble. He doesn't say "If **you** litter;" he says "If **there** is litter."

7. Essentially, nothing done by the teacher created the problem, however, the problem is that Tommy has disobeyed room standards.

Mr. Finch has probably handled the situation well by not overreacting. Such language does exist and is used by students among themselves, perhaps more often than we'd care to admit. Tommy has **acknowledged** that he

knows he made a mistake by turning to Mr. Finch. Mr. Finch's class was interested and involved. To have broken that mood by preaching could easily have done more harm than good. If, in fact, Mr. Finch does know his students and has a good rapport, he could convey by his look that, "Yes, it was wrong, but we know it was not intentional." Thus, Tommy has not gotten away with anything, the situation has merely been kept in its proper perspective.

8. Mr. Kester should have had classroom standards covering such basic things as leaving pan handles sticking out, and how to treat burns, and every student should have been completely familiar with these procedures. Furthermore, he should have familiarized his students with emergency procedures to be followed. The lack of standards caused the accident; lack of emergency procedures caused the utter chaos which followed the accident. Even with rules, carelessness can still cause accidents, but once an accident occurs, it is essential that the victim be treated quickly and correctly.

Not only was Mr. Kester negligent about establishing procedures, he humiliated Sarah publicly, and he was not calm at all when calmness was especially needed. Instead of getting Sally Ann treated, the mess cleaned up, and the class calmed down, he was busy shouting at Sarah. He has tried to teach an important safety lesson by a highly negative example, and he has hurt his relationship with his students.

9. Mr. Taylor contributed to the problem by not knowing his students' names. In addition, the auditorium should have been kept light enough for him to make eye contact, especially since it was early in the year and since he didn't know their names.

The nudging battle was keeping the nudgers from seeing the movie, and was probably distracting other students. It should have been handled promptly. It would be preferable not to disrupt the continuity of the movie. Eye contact might have been adequate. Had he known their names, it might have been easier to separate the students right away.

To punish the students by depriving them of some necessary piece of learning is not good. In addition, they would probably get the information from their fellow students, which places a further burden on those other students. Finally, it is doubtful that this punishment will in any way teach the students how to behave during movies.

10. Indirectly, Ms. Crook caused the problem. She is responsible for making sure that all equipment is kept in good operating condition

It is possible that hard use by many students could cause a machine to break down in spite of good care. Doubling up students is not a bad idea; however, it's not enough. It leaves two students standing around idle and that created a problem. She should have given them some other responsibility such as assisting her or other students in some way.

11. Mr. James created the problem by arranging only transportation. His error was in not discussing anything further with his students ahead of time. They weren't given any preparation or motivation nor any guidelines in advance of the trip, nor was he prepared since he

had to stay with the guide to find out. Since he was up front paying such close attention to the guide, he was not adequately monitoring his students. Consequently, it is not surprising that problems arose.


Once the problem did occur, he should not have put it on a "why did they do this to me" basis. For one thing, he has no positive proof that his students committed the "crime." He should not have punished the whole group, nor tried to force someone to "rat" on the culprit. He needed to rely more on discussion with students to develop mutual trust and understanding both before and after the trip. And, of course, he needs to contact the newspaper office, after discussion with his students, to indicate that the matter is being investigated.

LEVEL OF PERFORMANCE: Your completed critiques should have covered the same major points as the model responses. If you missed some points, or have questions about any additional points you made, review the material in the information sheet, An Introduction to Discipline, pp 6-10, or check with your resource person if necessary.

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Learning Experience IV

FINAL EXPERIENCE



Terminal
Objective

In an actual school situation,* assist students in developing self-discipline.



Activity

Plan and teach in such a way as to develop self-discipline in your students. Specifically, this will involve:

- obtaining copies of the policy manuals for your school and/or district, and reviewing these with students
- developing initial guidelines and procedures for the classroom and laboratory, and reviewing these with students
- arranging your classroom so that it is physically attractive and functional,
- planning and teaching your lessons in a way which will minimize the chances of problems arising
- involving students in establishing final guidelines and procedures for the classroom and laboratory
- handling problems which do arise according to sound methods of discipline

NOTE: Due to the nature of this experience, you will need to have access to an actual school situation over an extended period of time (e.g., two to six weeks).

As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes.

Your resource person may want you to submit your written lesson plan(s) to him/her for evaluation before you present your lesson(s). It may be helpful for your resource person to use the TPAF from Module B-4, *Develop a Lesson Plan*, to guide his/her evaluation.

Arrange in advance to have your resource person review your documentation and observe at least one of your lesson presentations (e.g., one in which you develop guidelines and procedures).



Feedback

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 35-36.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in assisting students in developing self-discipline.

*For a definition of "actual school situation," see the inside back cover.

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TEACHER PERFORMANCE ASSESSMENT FORM

Assist Students in Developing Self-Discipline (E-7)

Name _____

Date _____

Resource Person _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

LEVEL OF PERFORMANCE

The teacher:

1. reviewed school policies and student codes of behavior
2. discussed with students the standards of expected behavior
3. took necessary steps to ensure compliance with the standards of behavior established by school policy
4. developed programs and techniques to motivate students to uphold school standards of behavior
5. discussed with students the need for special standards of behavior in the vocational classroom and laboratory
6. developed a written code of behavior cooperatively with students
7. reviewed the code of behavior with students
8. organized classroom and laboratory to encourage acceptable student behavior
9. supervised learning experiences in the classroom and laboratory
10. rewarded acceptable student behavior
11. identified unacceptable student behavior
12. considered alternative disciplinary actions
13. implemented disciplinary action in accordance with school policy
14. obtained the cooperation of students in developing an environment conducive to self-discipline
15. encouraged student self-direction and decision-making

N/A

None


Poor

Fair

Good

Excellent

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	N/A	None	Poor	Fair	Good	Excellent
16. used preventive measures such as seating, physical arrangement of the room, and motivational lesson plans to reduce the chance of aggressive behavior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
17. provided a change of pace in the learning activities to reduce tendency toward misbehavior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
18. was fair, firm, and consistent in handling discipline problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
19. analyzed reasons for any aggressive behavior in an attempt to prevent future occurrences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

ABOUT USING THE CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should enable you to achieve the terminal objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an inservice teacher.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills which you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the Introduction, (2) the Objectives listed on p. 4, (3) the Overviews preceding each learning experience, and (4) the Final Experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience and thus can omit that (those) learning experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience and have access to an actual school situation, make the necessary arrangements with your resource person. If you do not complete the final experience successfully, meet with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped; (2) repeating activities; (3) reading supplementary resources or completing additional activities suggested by the resource person; (4) designing your own learning experience; or (5) completing some other activity suggested by you or your resource person.

Terminology

Actual School Situation . . . refers to a situation in which you are actually working with, and responsible for, secondary or post-secondary vocational students in a real school. An intern, a student teacher, or an inservice teacher would be functioning in an actual school situation. If you do not have access to an actual school situation when you are taking the module, you can complete the module up to the final learning experience. You would then do the final learning experience later, i.e., when you have access to an actual school situation.

Alternate Activity or Feedback . . . refers to an item or feedback device which may substitute for required items which, due to special circumstances, you are unable to complete.

Occupational Specialty . . . refers to a specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity).

Optional Activity or Feedback . . . refers to an item which is not required, but which is designed to supplement and enrich the required items in a learning experience.

Resource Person . . . refers to the person in charge of your educational program; the professor, instructor, administrator, supervisor, or cooperating/supervising/classroom teacher who is guiding you in taking this module.

Student . . . refers to the person who is enrolled and receiving instruction in a secondary or post-secondary educational institution.

Vocational Service Area . . . refers to a major vocational field: agricultural education, business and office education, distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher . . . refers to the person who is taking the module.

Levels of Performance for Final Assessment

N/A . . . The criterion was not met because it was not applicable to the situation.

None . . . No attempt was made to meet the criterion, although it was relevant.

Poor . . . The teacher is unable to perform this skill or has only very limited ability to perform it.

Fair . . . The teacher is unable to perform this skill in an acceptable manner, but has some ability to perform it.

Good . . . The teacher is able to perform this skill in an effective manner.

Excellent . . . The teacher is able to perform this skill in a very effective manner.

Titles of The Center's Performance-Based Teacher Education Modules

Category A: Program Planning, Development, and Evaluation

- A-1 Prepare for a Community Survey
- A-2 Conduct a Community Survey
- A-3 Report the Findings of a Community Survey
- A-4 Organize an Occupational Advisory Committee
- A-5 Maintain an Occupational Advisory Committee
- A-6 Develop Program Goals and Objectives
- A-7 Conduct an Occupational Analysis
- A-8 Develop a Course of Study
- A-9 Develop Long-Range Program Plans
- A-10 Conduct a Student Follow-Up Study
- A-11 Evaluate Your Vocational Program

Category B: Instructional Planning

- B-1 Determine Needs and Interests of Students
- B-2 Develop Student Performance Objectives
- B-3 Develop a Unit of Instruction
- B-4 Develop a Lesson Plan
- B-5 Select Student Instructional Materials
- B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution

- C-1 Direct Field Trips
- C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
- C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
- C-4 Direct Students in Instructing Other Students
- C-5 Employ Simulation Techniques
- C-6 Guide Student Study
- C-7 Direct Student Laboratory Experience
- C-8 Direct Students in Applying Problem-Solving Techniques
- C-9 Employ the Project Method
- C-10 Introduce a Lesson
- C-11 Summarize a Lesson
- C-12 Employ Oral Questioning Techniques
- C-13 Employ Reinforcement Techniques
- C-14 Provide Instruction for Slower and More Capable Learners
- C-15 Present an Illustrated Talk
- C-16 Demonstrate a Manipulative Skill
- C-17 Demonstrate a Concept or Principle
- C-18 Individualize Instruction
- C-19 Employ the Team Teaching Approach
- C-20 Use Subject Matter Experts to Present Information
- C-21 Prepare Bulletin Boards and Exhibits
- C-22 Present Information with Models, Real Objects, and Flannel Boards
- C-23 Present Information with Overhead and Opaque Materials
- C-24 Present Information with Filmstrips and Slides
- C-25 Present Information with Films
- C-26 Present Information with Audio Recordings
- C-27 Present Information with Televised and Videotaped Materials
- C-28 Employ Programmed Instruction
- C-29 Present Information with the Chalkboard and Flip Chart

Category D: Instructional Evaluation

- D-1 Establish Student Performance Criteria
- D-2 Assess Student Performance: Knowledge
- D-3 Assess Student Performance: Attitudes
- D-4 Assess Student Performance: Skills
- D-5 Determine Student Grades
- D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management

- E-1 Project Instructional Resource Needs
- E-2 Manage Your Budgeting and Reporting Responsibilities
- E-3 Arrange for Improvement of Your Vocational Facilities
- E-4 Maintain a Filing System

- E-5 Provide for Student Safety
- E-6 Provide for the First Aid Needs of Students
- E-7 Assist Students in Developing Self-Discipline
- E-8 Organize the Vocational Laboratory
- E-9 Manage the Vocational Laboratory

Category F: Guidance

- F-1 Gather Student Data Using Formal Data-Collection Techniques
- F-2 Gather Student Data Through Personal Contacts
- F-3 Use Conferences to Help Meet Student Needs
- F-4 Provide Information on Educational and Career Opportunities
- F-5 Assist Students in Applying for Employment or Further Education

Category G: School-Community Relations

- G-1 Develop a School-Community Relations Plan for Your Vocational Program
- G-2 Give Presentations to Promote Your Vocational Program
- G-3 Develop Brochures to Promote Your Vocational Program
- G-4 Prepare Displays to Promote Your Vocational Program
- G-5 Prepare News Releases and Articles Concerning Your Vocational Program
- G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
- G-7 Conduct an Open House
- G-8 Work with Members of the Community
- G-9 Work with State and Local Educators
- G-10 Obtain Feedback about Your Vocational Program

Category H: Student Vocational Organization

- H-1 Develop a Personal Philosophy Concerning Student Vocational Organizations
- H-2 Establish a Student Vocational Organization
- H-3 Prepare Student Vocational Organization Members for Leadership Roles
- H-4 Assist Student Vocational Organization Members in Developing and Financing a Yearly Program of Activities
- H-5 Supervise Activities of the Student Vocational Organization
- H-6 Guide Participation in Student Vocational Organization Contests

Category I: Professional Role and Development

- I-1 Keep Up-to-Date Professionally
- I-2 Serve Your Teaching Profession
- I-3 Develop an Active Personal Philosophy of Education
- I-4 Serve the School and Community
- I-5 Obtain a Suitable Teaching Position
- I-6 Provide Laboratory Experiences for Prospective Teachers
- I-7 Plan the Student Teaching Experience
- I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education

- J-1 Establish Guidelines for Your Cooperative Vocational Program
- J-2 Manage the Attendance, Transfers, and Terminations of Co-Op Students
- J-3 Enroll Students in Your Co-Op Program
- J-4 Secure Training Stations for Your Co-Op Program
- J-5 Place Co-Op Students on the Job
- J-6 Develop the Training Ability of On-the-Job Instructors
- J-7 Coordinate On-the-Job Instruction
- J-8 Evaluate Co-Op Students' On-the-Job Performance
- J-9 Prepare for Students' Related Instruction
- J-10 Supervise an Employer-Employee Appreciation Event

RELATED PUBLICATIONS

- Student Guide to Using Performance-Based Teacher Education Materials
- Resource Person Guide to Using Performance-Based Teacher Education Materials
- Guide to the Implementation of Performance-Based Teacher Education

For information regarding availability and prices of these materials contact—

AAVIM

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Modules; *Organization; Post Secondary Education;
*Program Administration; *School Shops; School Space;
Secondary Education; *Space Utilization; Teacher
Education Curriculum; Teaching Skills; *Vocational
Education

ABSTRACT

This eighth in a series of nine learning modules on instructional management is designed to assist secondary and postsecondary vocational teachers in becoming competent in organizing the vocational laboratory (including planning, designing, arranging, setting up, remodeling, renovating, and expanding the learning facility). Introductory sections relate the competency dealt with in this module to others in the program and list both the enabling objectives for the three learning experiences and the resources required. Materials in the learning experiences include required reading, a table showing recommended laboratory space for selected occupational programs, laboratory plan drawings, a self-check quiz, model answers, a vocational laboratory observation checklist, a laboratory planning checklist, and the teacher performance assessment form for use in evaluation of the terminal objective. (The modules on instructional management are part of a larger series of 100 field-tested performance-based teacher education (PETE) self-contained learning packages for use in preservice or inservice training of teachers in all occupational areas. Materials are designed for use by teachers, either on an individual or group basis, working under the direction of one or more resource persons/instructors.) (BL)

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ED149107

MODULE

E-8

Organize the Vocational Laboratory

MODULE E-8 OF CATEGORY E—INSTRUCTIONAL MANAGEMENT PROFESSIONAL TEACHER EDUCATION MODULE SERIES

The Center for Vocational Education

The Ohio State University

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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FOREWORD

This module is one of a series of 100 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and post-secondary levels of instruction. The modules are suitable for the preparation of teachers in all occupational areas.

Each module provides learning experiences that integrate theory and application; each culminates with criterion referenced assessment of the teacher's performance of the specified competency. The materials are designed for use by individual or groups of teachers in training working under the direction and with the assistance of teacher educators acting as resource persons. Resource persons should be skilled in the teacher competency being developed and should be thoroughly oriented to PBTE concepts and procedures in using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based preservice and inservice teacher preparation programs to meet a wide variety of individual needs and interests. The materials are intended for use by universities and colleges, state departments of education, post-secondary institutions, local education agencies, and others responsible for the professional development of vocational teachers. Further information about the use of the modules in teacher education programs is contained in three related documents: **Student Guide to Using Performance-Based Teacher Education Materials**, **Resource Person Guide to Using Performance-Based Teacher Education Materials** and **Guide to Implementation of Performance-Based Teacher Education**.

The PBTE curriculum packages are products of a sustained research and development effort by The Center's Program for Professional Development for Vocational Education. Many individuals, institutions, and agencies participated with The Center and have made contributions to the systematic development, testing, revision, and refinement of these very significant training materials. Over 40 teacher educators provided input in development of initial versions of the modules, over 2,000 teachers and 300 resource persons in 20 universities, colleges, and post-secondary institutions used the materials and provided feedback to The Center for revision and refinement.

Special recognition for major individual roles in the direction, development, coordination of testing, revision, and refinement of these materials is extended to the following program staff: James B. Hamilton, Program Director, Robert E. Norton, As-

sociate Program Director, Glen E. Fardig, Specialist, Lois Harrington, Program Assistant, and Karen Quinn, Program Assistant. Recognition is also extended to Kristy Ross, Technical Assistant, Joan Jones, Technical Assistant, and Jean Wisenbaugh, Artist for their contributions to the final refinement of the materials. Contributions made by former program staff toward developmental versions of these materials are also acknowledged. Calvin J. Cotrell directed the vocational teacher competency research studies upon which these modules are based and also directed the curriculum development effort from 1971-1972. Curtis R. Finch provided leadership for the program from 1972-1974.

Appreciation is also extended to all those outside The Center (consultants, field site coordinators, teacher educators, teachers, and others) who contributed so generously in various phases of the total effort. Early versions of the materials were developed by The Center in cooperation with the vocational teacher education faculties at Oregon State University and at the University of Missouri-Columbia. Preliminary testing of the materials was conducted at Oregon State University, Temple University, and University of Missouri-Columbia.

Following preliminary testing, major revision of all materials was performed by Center Staff with the assistance of numerous consultants and visiting scholars from throughout the country.

Advanced testing of the materials was carried out with assistance of the vocational teacher educators and students of Central Washington State College, Colorado State University, Ferris State College, Michigan; Florida State University; Holland College, P.E.I., Canada, Oklahoma State University, Rutgers University; State University College at Buffalo; Temple University; University of Arizona; University of Michigan-Flint; University of Minnesota-Twin Cities; University of Nebraska-Lincoln; University of Northern Colorado, University of Pittsburgh, University of Tennessee, University of Vermont, and Utah State University.

The Center is grateful to the National Institute of Education for sponsorship of this PBTE curriculum development effort from 1972 through its completion. Appreciation is extended to the Bureau of Occupational and Adult Education of the U.S. Office of Education for their sponsorship of training and advanced testing of the materials at 10 sites under provisions of EPDA Part F, Section 553. Recognition of funding support of the advanced testing effort is also extended to Ferris State College, Holland College, Temple University, and the University of Michigan-Flint.

Robert E. Taylor
Director
The Center for Vocational Education



THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University 1960 Kenny Road Columbus, Ohio 43210

The Center for Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning and preparation. The Center fulfills its mission by

- Generating knowledge through research.
- Developing educational programs and products.
- Evaluating individual program needs and outcomes
- Installing educational programs and products.
- Operating information systems and services
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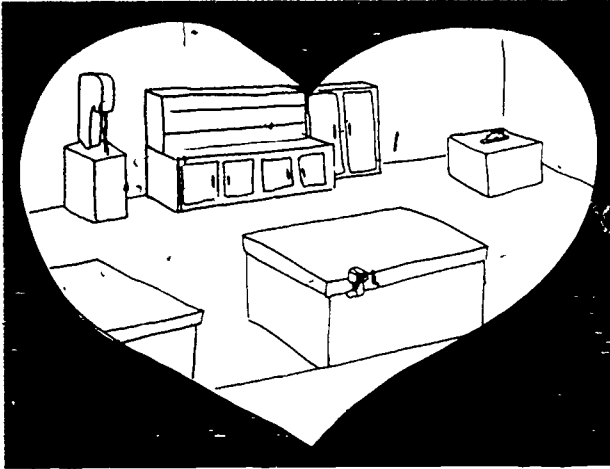
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INSTRUCTIONAL MATERIALS

Engineering Center
Athens, Georgia 30602

The American Association for Vocational Instructional Materials (AAVIM) is an interstate organization of universities, colleges and divisions of vocational education devoted to the improvement of teaching through better information and teaching aids.

INTRODUCTION

Vocational education laboratories are often the teacher's pride, a showplace for the school, and a pleasure for the students to work in. In many programs, the laboratory—and the work that goes on there—is the very heart of the program. In the laboratory, students can experience success, prove themselves, and be rewarded with tangible results.



Laboratories are also expensive to build and equip, and difficult to maintain. Teachers of laboratory subjects typically spend a great deal of their time and energy in organizing and maintaining the laboratory for which they are responsible. Therefore, the vocational laboratory must be carefully planned and organized if it is to facilitate instruction, permit teacher and students to work ef-

ficiently, provide safety for students and security for equipment and supplies, and justify its cost.

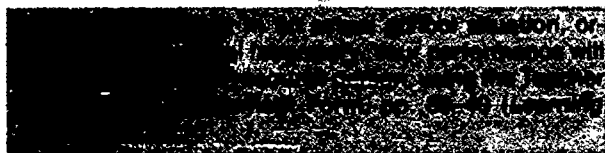
As a vocational teacher, you may be involved in organizing the laboratory in a number of ways. You may participate in the design of entirely new facilities. More often, however, you will need to reorganize or modernize an existing laboratory. Perhaps you may simply need to take stock of your laboratory at regular intervals to make sure that it still provides the environment for instruction for which it was intended. In any case, you will need to know the basic principles common to all laboratory planning and be able to apply them in organizing a laboratory in your specific vocational education area.

In this module, the term "laboratory" is used for the facility in a vocational program where the action learning or manipulative activities take place. In some programs, it may also be called a "shop," "workroom," or "office." Whatever the name, the concept is the same and the same principles of planning and organizing apply.

This module is designed to help you become competent in **organizing** the vocational laboratory. This broad term includes such things as planning, designing, arranging, setting up, remodeling, renovating, and expanding the learning facility. A subsequent module (E-9) deals with the day-to-day management, operation, and maintenance of the vocational laboratory.

ABOUT THIS MODULE

Objectives



Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the principles and procedures involved in organizing a vocational laboratory (*Learning Experience I*).
2. Given an actual vocational laboratory in your occupational specialty, evaluate the organization of the laboratory and develop plans for its improvement (*Learning Experience II*).

Resources

A list of the outside resources which supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions, or in assessing your progress at any time.

Learning Experience I

Required

Reference. Occupational Safety and Health Standards, Code of Federal Regulations, Title 29, Part 1910, Labor, Chapter XVII. Washington, DC: Occupational Safety and Health Administration, latest edition.

Optional

Reference: Storm, George. Managing the Occupational Education Laboratory. Belmont, CA: Wadsworth Publishing Co., 1976.

The slide/tape, "Organizing and Maintaining the Vocational Laboratory," The Center for Vocational Education; The Ohio State University, Columbus, Ohio.

A slide projector and cassette tape recorder for viewing a slide/tape presentation.

A screen to use with the projector

Learning Experience II

Required

A vocational laboratory in your occupational specialty to visit and evaluate.

A resource person to evaluate your plans for improving the laboratory.

Learning Experience III

Required

An actual school situation in which you can organize the vocational laboratory

A resource person to assess your competency in organizing the vocational laboratory.

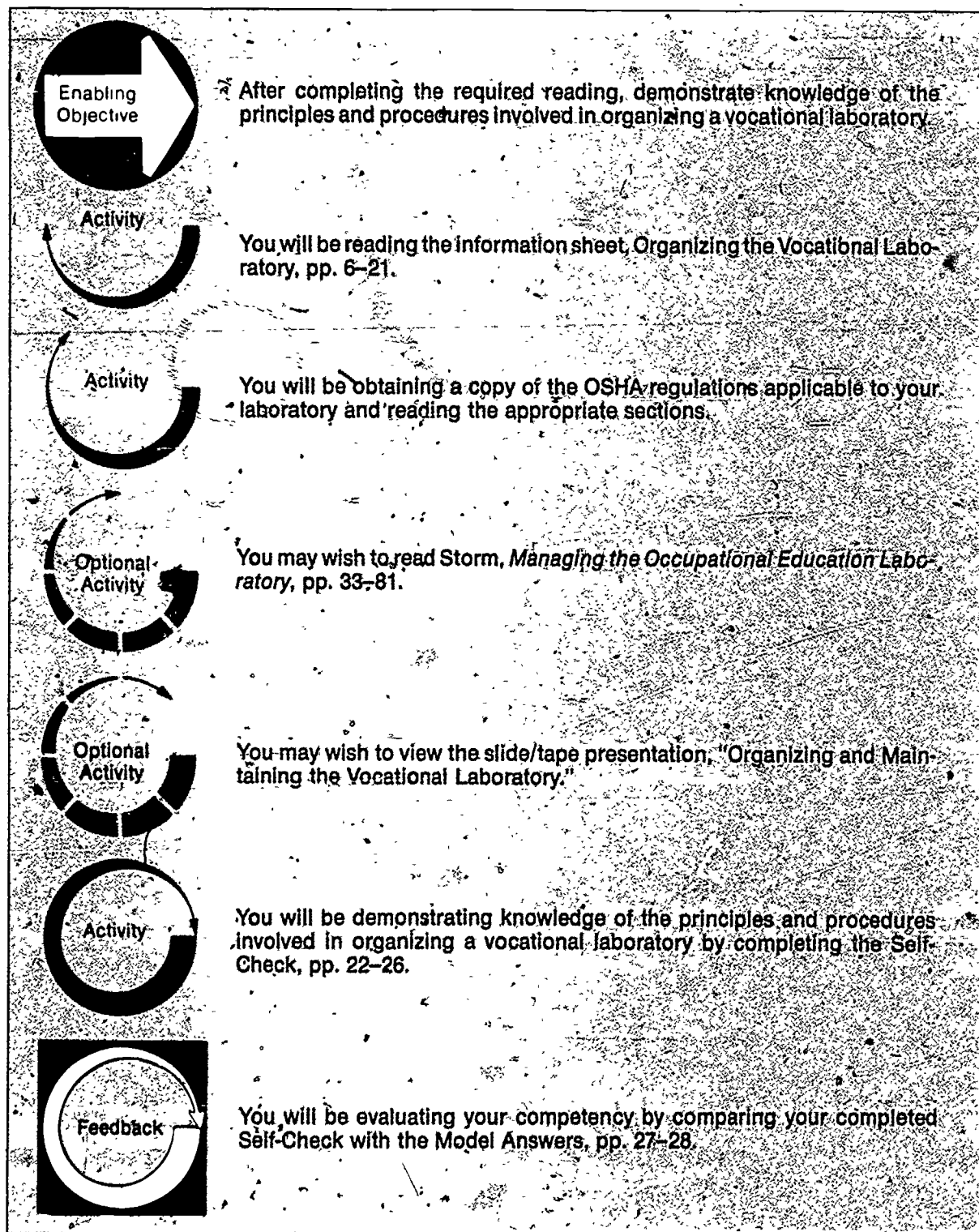
NOTE: The safety aspects of organizing a vocational laboratory require the most up-to-date information available on governmental safety regulations and guidelines. It is recommended that the following recently published document be used as a supplement to this module: Wahl, Ray. *A Safety and Health Guide for Vocational Educators: An Instructional Guide with Emphasis on Cooperative Education and Work-Study Programs.* Harrisburg, PA: Pennsylvania Department of Education, Bureau of Vocational Education, 1977.

This module covers performance element numbers 194, 198, 199 from Calvin J. Cotrell et al., *Model Curricula for Vocational and Technical Education. Report No. V* (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1972). The 384 elements in this document form the research base for all The Center's PBTE module development.

For information about the general organization of each module, general procedures for their use, and terminology which is common to all 100 modules, see *About Using The Center's PBTE Modules* on the inside back cover.

Learning Experience I

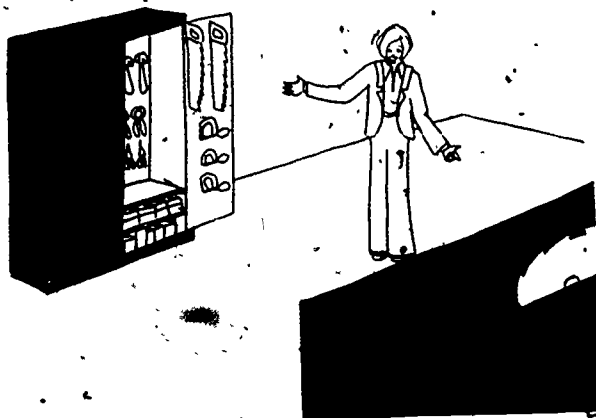
OVERVIEW



Read the following information sheet about the principles and procedures involved in planning and organizing a vocational laboratory. As you read, attempt to relate the information to the laboratories in your own occupational specialty.

ORGANIZING THE VOCATIONAL LABORATORY

Vocational teachers have a great responsibility that is virtually unknown to most teachers of classroom academic subjects. While the typical classroom teacher may have to care for a few desks, chairs, a chalkboard, and some books, you, as a vocational teacher, have a large, complex, and expensive laboratory for which you are responsible. The room itself may be specially built. It will very likely contain a number of expensive pieces of equipment, a great many small tools or instruments, and a wide variety of supplies. All of this



must be taken care of and used efficiently to help train students for their chosen occupation.

In spite of the work and the difficulties, you can derive a great deal of satisfaction from developing a laboratory that looks good and functions well. You know that probably no one single factor is more important in capturing and maintaining student interest than the quality of the vocational laboratory. You also know that a well-planned and thoroughly organized laboratory makes it much easier to prepare students for the occupation.

The essential purpose of a well-planned and managed laboratory is, plainly enough, that students should be able to learn the skills needed in the occupation. The vocational laboratory should **promote** learning rather than make it difficult. It should make learning a **pleasant** and **satisfying** experience rather than one that is to be avoided. By simulating occupational conditions, the laboratory prepares students for the real world and, thus, becomes a learning experience itself.

In addition to the primary quality of instructional

effectiveness, there are several other important characteristics a well-organized vocational laboratory should possess.

- It should be **efficient**. Teacher and students should be able to work with maximum productivity and a minimum of wasted time and energy. The most important factor here is the spatial arrangement of tools and equipment.
- It should provide a **safe and healthful environment** in which to work. Students should be able to complete the program in at least as good a physical condition as when they entered. The laboratory must provide good lighting, proper ventilation, a minimum of noise, and safe equipment.
- It should provide for the **psychological needs** of students. The environment should be one that fosters desirable attitudes and promotes mental well-being. It should present a feeling of order, security, and pleasantness so as to promote the desire to learn. Depending on the needs of the occupation, the laboratory can suggest the qualities of accuracy and precision, quiet efficiency, or stylish beauty.
- It should permit the teacher to be in **control** of laboratory activities at all times. This means the teacher should have **lines of sight** to all parts of the room, should be able to **hear** the equipment in operation, and should have **quick access** to all areas.
- It should provide **security** for the instruments, tools, equipment, and supplies that are essential to the laboratory. The laboratory must be designed to minimize loss or damage from vandalism, theft, mishandling, weather, and other negative elements.
- It should be as **visually pleasing** as the activities permit. Light, color, texture, pattern, and space all contribute to the effect. A laboratory can be a place of stimulation and excitement and certainly need not be one of confusion or dullness.

This is quite a large order, but a great many laboratories do manage to meet it, and others could be brought closer to the ideal by the cooperative efforts of the vocational teacher and the school administration.

The first phase of work in achieving all the qual-

ities of an instructionally effective laboratory is that of **planning** and **organizing** the facility. This includes the design or plan of the space itself, and plans for provision of services such as illumination, electrical service, ventilation, and plumbing. It also includes arrangement of major equipment and furniture in the work space, and detailed planning of such things as storage, safety, and color.

You may be involved in the planning phase of laboratory organization in several ways. In some cases, you may be a member of a planning group charged with designing an entirely new vocational education laboratory. The group may be comprised of teachers, an educational facilities specialist, a school administrator, and an architect. Together, you would work out the basic requirements of a facility for an expanded vocational program or the vocational wing of a new school building.

You may need to draw on your technical and teaching expertise in the process of writing the educational specifications, designing the floor plan, specifying tools and equipment, and checking the final working drawings. Because vocational teachers are only infrequently concerned with drawing and planning new laboratories, these skills are not emphasized in this module.

It is more likely, however, for a vocational teacher to be hired for a teaching position and assigned to work in an existing laboratory. If this is the case, one of the first things to be done is to make a careful evaluation of the laboratory, document any deficiencies, and draw up a plan for improvement.

Depending on conditions, the needed improvements may involve some re-modeling of the building, repair or refurbishing of the facilities, or rearrangement of the major components within the laboratory. If you are making tentative plans to update your program by adding a new technical operation or an important piece of equipment, you will also need to go through this planning process.

It is highly desirable that, at regular intervals of a year or two, you make a complete evaluation of the

laboratory, and take all possible steps to correct any poor conditions. This is not as simple or as routine as it may appear. It is all too easy to become accustomed to bad ventilation and deteriorating lighting, for example, and not even be aware of it. Teacher and students alike learn to step around a hole in the floor and put up with a storage room with insufficient shelving. A laboratory that was a model of excellence ten years ago may be made woefully inadequate by changes in technology or school population, but the changes may have been so gradual that they passed unnoticed.

You will need, therefore, to make the necessary effort to **plan** for improvement, make the appropriate people **aware** of the needs of the laboratory, and **follow up** on the request for **change**. It is certainly your urgent responsibility (both moral and legal) to notify the school administration of any conditions in the laboratory that seriously hamper instruction or pose a threat to the safety and well-being of the students.

Even in a situation in which your authority is limited, there is still much that can be done to make the laboratory an efficient place in which to work and learn. You usually can control the lighting, rearrange furniture and tools, and organize the storage of materials.

You may find it worthwhile to invest your personal time and effort in improving your laboratory by installing shelving, constructing tool panels, painting walls and equipment, or making draperies. While such work cannot be considered a recognized professional obligation, it may pay great dividends in terms of teacher and student satisfaction.

The size, shape, content, and organization of vocational laboratories vary widely. This depends to a great extent on the nature of the occupations for which students are being prepared. A home economics cooking laboratory, an office machines laboratory, a horticulture potting shed, and an aircraft engine shop are very different from each other indeed. Regardless of the area of preparation, however, there are many common considerations in the planning and organization of the laboratory area.

It is important to remember that in planning and organizing any laboratory facility, you must take the long-term view. Other teachers will be working in the laboratory in years to come, so the design must be based on recognized principles and not personal preferences. Chalkboards should not be installed near the floor just because the present teacher is shorter than average, and machines should not be painted red and blue simply because a teacher wants to display the school colors.



Often, students can be of considerable help in organizing a laboratory. They work in it daily and are almost directly affected by its benefits or deficiencies. By closely observing students at work, you may be able to see where they are wasting time or operating inefficiently. Students are usually quite creative in the art of finding shortcuts, avoiding unnecessary effort, and overcoming difficulties.

Through class discussion, you should be able to get many specific complaints about the present laboratory facilities, and you may also receive some valuable suggestions. If it is approached as something that will benefit them, students are often enthusiastic about participating in a plan of



laboratory improvement. They can do such things as help move equipment, install shelving, reorganize the storage of materials, or even paint the machines.

Educational Factors in Laboratory Planning

Plans for providing for the students, equipment, and supplies in the laboratory must be continually tested against some basic assumptions, principles, and practices of the vocational program. Not only should the laboratory be educationally sound for the present program, it should be able to accommodate program changes in the foreseeable future as smoothly as possible. It is important that as planning and organization progress, the following factors be kept constantly in mind.

The laboratory must foster the **long-range goals** and **specific objectives** of the vocational program. If a goal is "to provide more access to vocational education for handicapped students," the laboratory should be planned to avoid obstacles for wheelchairs, provide wide aisles, permit operation of machines while seated, etc.

If a specific objective is "to train students in microwave cooking," then the proper equipment and space must be incorporated in the laboratory to do the job. Such planning assumes, of course, that the goals and objectives have been clearly formulated and written down. If this has not been done, it should be accomplished before any more planning proceeds.

The **units, lessons, and learning activities** that are the content of the course will help determine the equipment to be included in the laboratory and the space required. Course outlines and unit plans thus become important source materials for laboratory planning.

The **number of students** to be scheduled in the laboratory at any one time, their **age**, and their **grade level** are factors in laboratory organization. A facility planned for 24 beginning students in electricity may not be suitable for 15 adults in a course in color television service.

Probably the most important educational factor affecting the organization of the vocational laboratory is that of the teaching methods and approach to be used. Teaching methods govern the amount and kinds of space needed, the amount of duplicate equipment required, and the way in which the facilities are organized. As you examine the laboratory to determine its adequacy and efficiency, you should have a clear idea of the appropriate methods to be used for the subject matter to be taught. Then you can compare the facilities with the methods. Some broad guidelines for this evaluation follow.

Class lectures require either a separate classroom, or tablet-arm chairs in the laboratory itself which take up a great deal of valuable space. Sometimes folding risers can be used so that after lectures the space can be used for project building. Good acoustic conditions for intelligible speech are necessary. A demonstration table, chalkboard, and projection screen will usually also be needed.

Small-group instruction and demonstration may take place around a conference table, in a small and comfortable seating area, or around a piece of equipment. Major pieces of equipment may need more than the usual work space around them to allow you to talk to a small group of students as some technical process proceeds. For example, in a dental auxiliary program, the dental chairs should be spaced for group observation and instruction. In a drafting program, one large drafting table can be set aside for group instruction and be provided with generous viewing space around it.

The **project approach** may need unusually large working and storage space. Building trades pro-

grams may need great floor space, free of equipment, in which to construct building sections. In mild climates, outdoor work areas (perhaps protected by a roof) provide inexpensive work space. Exposure to the weather may provide students with some realistic occupational conditions. Bulky projects that require storage while they are underway (e.g., furniture) may present special problems, requiring secure storerooms or balcony areas.

If the laboratory revolves around live work for customers (e.g., cosmetology), there should be a pleasant and comfortable customer waiting area, somewhat separate from the laboratory proper. Live work involving such things as automobiles and television sets requires secure and protected storage of the customers' property.

Individualized vocational programs may need fewer duplicate tools and equipment because students are less likely to be doing all the same things at the same time. The individualized program, however, will probably require individual study facilities in the laboratory, and several filing cabinets for storing the learning packages (modules).

Instruction through the **use of visual materials** should be planned in most laboratories. A pull-down screen should be installed in front of the instruction seating, and any windows in the area equipped with opaque curtains so the room may be completely darkened. A cabinet in the laboratory for storing projectors and films is very helpful.

Techniques of Planning

Sooner or later in the laboratory planning process, you will need to put your ideas down on paper in some graphic form. It is far easier to visualize what the laboratory will look like if you can work from a drawing, sketch, or model than if you just have a vague mental picture of what you want to accomplish.

If you are trying to communicate your plans to others, it is essential that you have a graphic representation to show them. Even when you want to do some minor rearrangement, it is a lot more convenient to change some lines on a sketch than it is to move around a large piece of equipment trying to find a place in which it will fit.

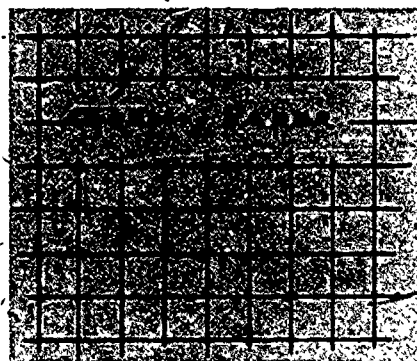
A sketch plan is probably the simplest and best way to get your ideas down on paper. A "Plan View" is a view of a room or a building drawn as if the room had been sliced through horizontally, about four feet above the floor level, and the top section lifted away. Looking straight down at a plan, you can see the outer walls and inner partitions with their windows and doors. You can also see low cabinets, machines or other equipment on the floor, and major pieces of furniture. (See Figure 1.)

On the plan, you can indicate with symbols the electrical outlets and plumbing fixtures if this is important to your planning. Simple bold lines are all that are needed, and even a fairly crude sketch plan is better than no drawing at all.

To be most helpful to you, the plan view should be drawn to scale; that is, the drawing on paper should be in proportion to the actual room. You can do this by using a ruler and letting a fraction of an inch on the drawing represent a foot in the real laboratory ($\frac{1}{2}$ in. equals 1 ft. is a convenient scale).

Another technique is to do the drawing on graph paper that is already ruled in small squares. You

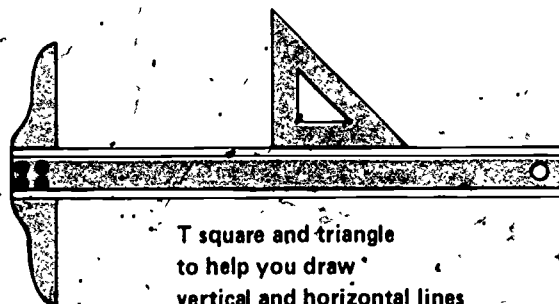
can let the side of each square represent one foot, or six inches, or some other convenient measure. It is relatively easy then to draw the main features of the room and equipment using heavy pencil lines, either freehand or with a straightedge.



graph paper
to draw to scale
without computation

In order to make any scale drawing of an existing laboratory you will, of course, need to know the dimensions of the room. A measuring tape (50 ft. or 100 ft. in length) is very helpful to have for this purpose, but a yardstick will do.

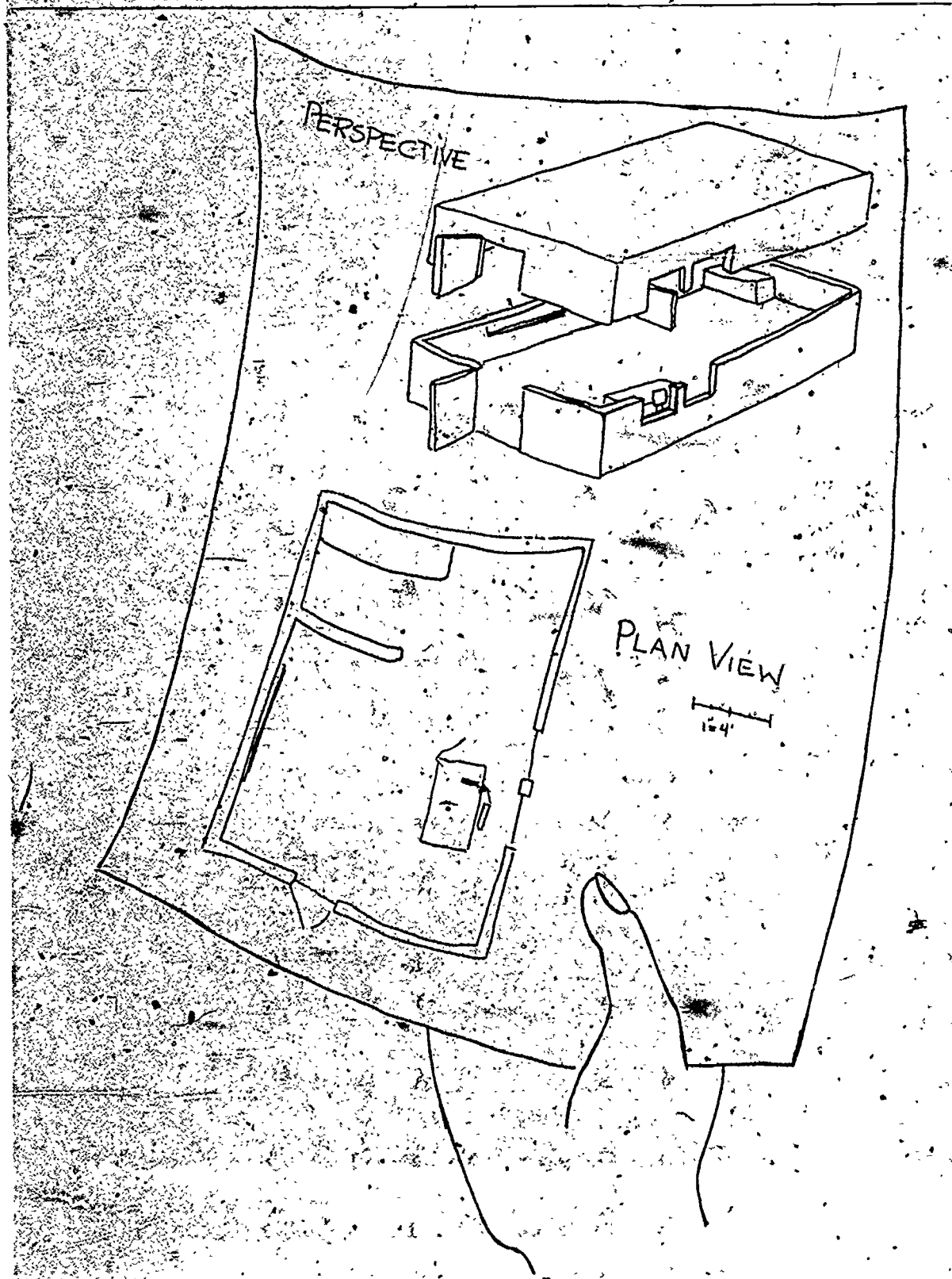
There are several other useful devices to help you to make good sketch plans. A T square and



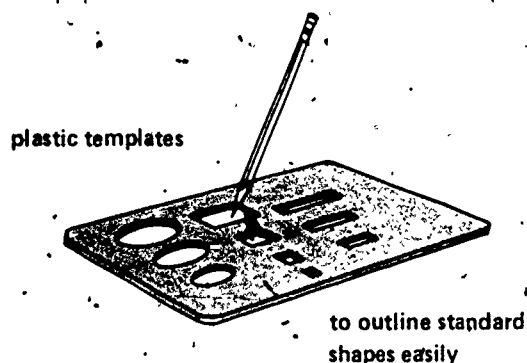
T square and triangle
to help you draw
vertical and horizontal lines

FIGURE 1

PLAN VIEW

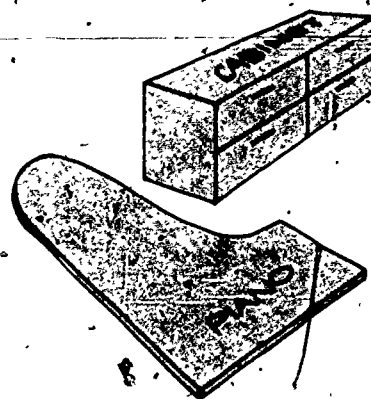


triangle will help you draw vertical and horizontal lines neatly and accurately. Plastic templates (patterns), available from art supply and book stores, make it easy to draw standard shapes such as circles, squares, and rectangles to represent laboratory features and equipment. If you want to experiment with different machine or furniture arrangements, you can cut pieces of heavy cardboard or illustration board in scale to represent the equipment. You can then move the pieces



around on the plan to arrive at the best arrangement.

For even more fun, make simple scale models of equipment out of clay or cut them from large bars of soap, and use them to help you visualize your laboratory organization ideas.



models of soap, clay, wood, or cardboard to represent equipment

The soap model doesn't have to look exactly like a dental chair or printing press; it just needs to have the same proportions and general shape.

Instructional Resource Center

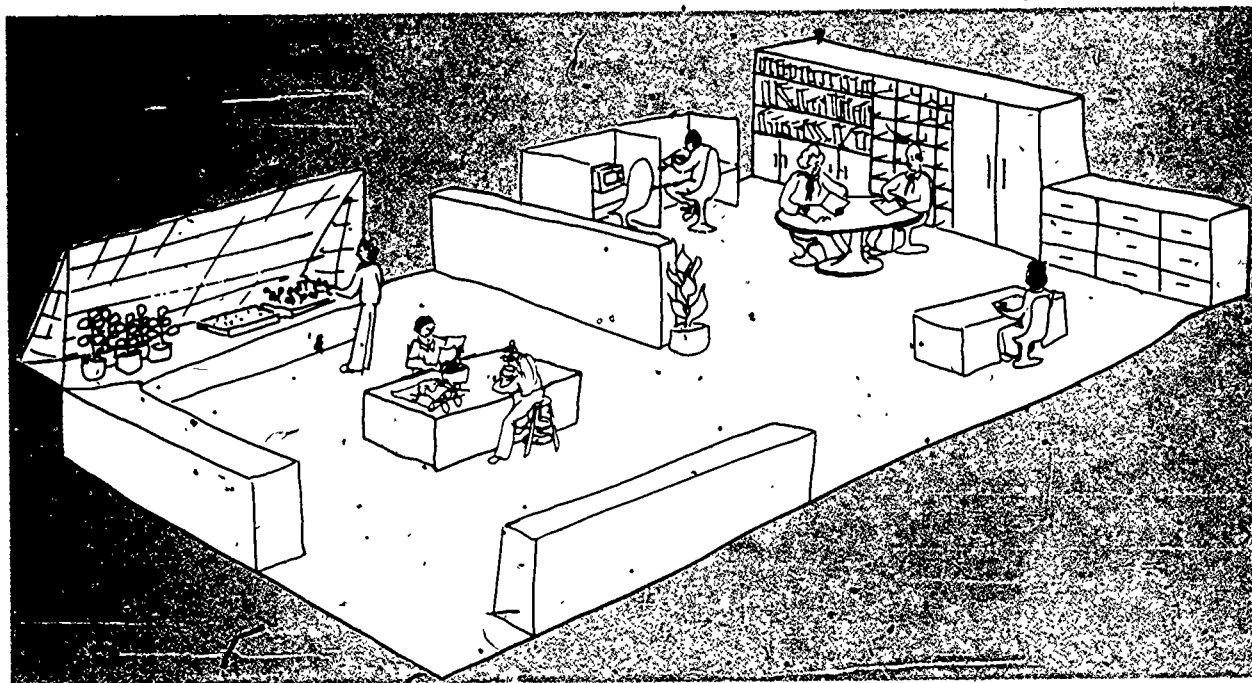
Contemporary vocational curricula are moving toward more individualization, greater responsibility of the student for his/her own education, and packaged or modularized instructional materials. This means that the vocational laboratory should be planned and organized to facilitate such activities. The instructional and study areas should, thus, be an integral part of the laboratory, or be in such close proximity that students can move freely back and forth among the study, conference, and skills areas as learning experiences require.

An instructional resource center (or learning center) is the place where students may conveniently work on the cognitive (knowledge) aspects of laboratory learning. It is a place to read; view, or listen to instructional media individually, consult reference material; solve technical problems; draw; and write.

From the resource center, the student can

quickly go to the skills area to verify the study by testing out a process, using an instrument, or operating a machine. If a problem arises, or more knowledge is needed, it is a simple matter for the student to move back to the resource center for further study.

There are some advantages to locating the vocational resource center outside the laboratory in a central location where it may be shared by several occupational programs. However, a resource center right within the laboratory can be of greater benefit to students. It is close to laboratory equipment, and the teacher is immediately available for help and direction. Most existing vocational laboratories can accommodate a resource center by rearranging the facilities and adding some furniture suitable for study activities. A resource center within the laboratory need not be large or extensive, but it should be well planned.



The following are some recommendations for organizing and equipping an instructional resource center in a vocational laboratory.

- The area selected should be out of the main laboratory traffic patterns, reasonably quiet, but easily accessible to the teacher to check on student progress and to answer questions. It is best to have some kind of semi-divider (perhaps a countertop cabinet).
- There should be generous general illumination and attractive colors to provide a stimulating atmosphere. If possible, a carpeted floor should be used to enhance the appearance and control noise.
- There should be study space for about 25 percent of the class at any one time.
- Small study tables and adjacent bookshelves should be provided. Better yet are individual study carrels with a built-in shelf and light.

- More and more instructional materials include media. A fully developed resource center should have a cassette tape player with headphones, filmstrip and/or slide projector, and a videotape player, if possible.
- Storage for the media materials may be in the form of a lockable storage cabinet or open "pigeonhole" boxes. In either case, it needs to be organized to permit easy access to the desired material.

The resource center can be a specially remodeled area of the laboratory, complete with new furniture and complex media devices. Or, it can be a simple affair made up of standard school equipment begged, borrowed, or bartered for the purpose. Most vocational laboratory teachers should be able to reorganize their facilities so as to be able to provide this valuable learning area for their students.

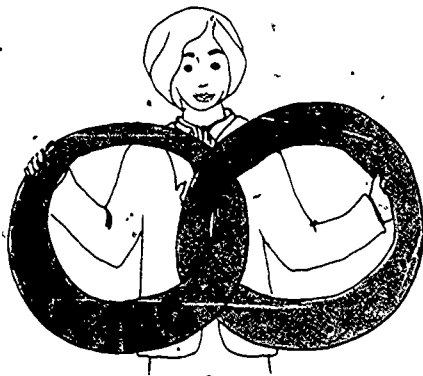
Simulating Occupational Conditions

Wherever it is possible, it is desirable to make the school vocational laboratory similar to occupational standards and to actual conditions in the working world. A realistic school laboratory can more effectively prepare students for the job, minimize the adjustments needed as the student enters the occupation, and create positive associations between working and learning. To reorganize a laboratory so that it more accurately simulates real-world conditions, you can draw on your personal occupational experience. You can also go out into the field to observe.

present conditions and practices in shops, offices, or stores. In addition, your occupational advisory committee can give you up-to-date information about how you might reorganize your laboratory.

School laboratories can be made to simulate occupational conditions in the following ways.

- Select the same types of equipment as used in the occupation, in terms of size and capability, function, and mode of operation. Outmoded equipment or special "school type" light-duty



machinery make it difficult for students to learn present occupational practice.

- Use materials and supplies comparable with those used in the occupation. In industrial drafting rooms, for example, use tracing films; do not have students do their work on manilla paper.
- Arrange machines and equipment in patterns similar to those on the job. If cooking pots are hung above the range in a commercial kitchen, the food service laboratory can use a similar arrangement, even if it detracts somewhat from a neat appearance.
- Create an atmosphere similar to that in the occupation by sensitive selection of color schemes, furnishings, and room arrangements. A child care laboratory can seem like the best of day care centers, and a food service area can simulate an attractive cafe with flowers on the tables and piped-in music.

Simulation can, of course, be carried too far. There is no point in simulating dirty or disorganized working conditions, even if such conditions exist in the occupation. The school laboratory is designed for different objectives than shops in business and industry. The laboratory's prime function is that of instruction, while the shop's purpose is that of production. A dental assistant's laboratory the size of a dentist's office would accommodate only a few students ... an aircraft mechanics laboratory designed to duplicate a service bay for a Boeing 747 would be unfeasible to say the least. You should attempt simulation, guided by your common sense.

Laboratory Arrangement

Not only must a vocational laboratory be well equipped, but the equipment must be placed in an arrangement that will allow work to go on efficiently, conveniently, safely, and pleasantly. Even teachers in existing laboratories have opportunities to improve the facility by doing some minor or major reorganization. Though the recommendations and requirements for laboratory arrangements will vary with the specific occupational area, there are a number of general principles that hold true for any facility.

Most laboratories are rectangular in shape, usually about twice as long as they are wide. This is an efficient design, relatively easy to organize, and effective in operation. There should be at least two doors—for student safety as well as convenience

in accepting service and deliveries. Ideally, there should be no columns or other structural members to obstruct the floor area.

There should be an adequate amount of space in the laboratory to provide for the expected laboratory activities and the number of students enrolled. The definition of "adequate" varies greatly with the occupational program. Light work confined to a desk or worktable may require as little as 30 square feet per student. With a class of 20 students this would mean about 600 square feet, or a laboratory space (not including storage) 18 feet wide and 34 feet long.

For laboratories where moderately active work takes place (e.g., typewriter repair), about 50

square feet per student is required. Heavy work (e.g., mine equipment maintenance) may need 100 or more square feet for each student. Some programs may require additional outdoor space (e.g., an outdoor play area for a child care program, a fenced area for vehicle storage in a automotive services program). (For some recommended laboratory spaces, see Figure 2.)

Students and teachers usually move around a great deal in a laboratory. They move from one machine to another, carry stock, get tools and instruments, and move their job to a workbench. These typical movements create patterns, called traffic patterns, that should be taken into consideration in organizing the laboratory. You should anticipate the traffic patterns and place tools and equipment so that—

- wide lanes are provided for major traffic
- students can move to get tools or stock without disrupting others' work
- travel distances between major work stations and to supply areas are as short as possible
- you can travel in relatively straight lines to be at hazard areas quickly
- the path from danger areas (e.g., metal casting) to exits is short and clear
- long materials (e.g., lumber) can be carried from supply rack to work place without turning sharp corners and endangering students

Well-planned walk space and short traffic patterns can be significant factors in (1) conserving your energy as you move about the laboratory, (2) making the work progress efficiently, with as little wasted time as possible, (3) providing a safe working environment for students, and (4) preventing unnecessary disruptions and discipline problems among students.

Somewhat related to traffic patterns are sight lines. Ideally, when you are working in the laboratory, you should be able to see all activity areas from any spot in the room. This permits you to observe every student at work and to take action to correct unsafe situations or see which students need help.

It is not always possible, of course, to have clear sight lines to every area of the laboratory. For example, the teacher of photography will not be able to see what is developing in the darkroom from other areas of the laboratory. In order to maintain sight lines in the laboratory, the following planning guidelines should be used.

- Plan the laboratory for a simple rectangular shape; avoid L shapes or separate rooms.
- Eliminate posts, columns, or other structural members; if they can't be eliminated, keep them as small as possible.
- Do not construct dividers, partitions, or tool panels in places where they will obstruct the view, though open dividers may be satisfactory.
- Large pieces of equipment or storage cabinets can be placed against a wall where they will not be an obstruction.

Not only should you be able to see what is going on in all parts of the laboratory, but you should be able to hear as well. A machine giving off the wrong sound because it is malfunctioning or being improperly operated should catch your attention instantly. In some situations (e.g., role-playing activities in distributive education), it is important for you to hear comments and responses between students as they work together. Generally, if extraneous noise is controlled and good lines of vision prevail, you should be able to hear readily enough.

The space around each work station should be adequate for the type of work to be done there. Small, close work (e.g., watch repair) requires very little extra space around the workbench because the job is basically self-contained. Other operations requiring processing of large-size materials (e.g., cutting a full 4 x 8 sheet of plywood on a table saw) require a great deal of free space surrounding the machine.

Some operations should have an unobstructed safety zone in a particular area in case of excessive heat, sparks, or malfunctions. For example, the table saw should have about 20 feet of unused area immediately behind the blade in case a piece of wood is thrown violently backward. As you figure work space for a particular work station or machine, determine (1) whether more than one person will be working there at the same time, (2) how much space is required for the convenient and safe movement of the student, and (3) the maximum size of the material to be used at the station.

The plan drawings in Figure 3 show a basically undesirable L-shaped laboratory area with many built-in problems. Plan I indicates problems of traffic flow, lack of security, and difficulty of teacher control. Plan II shows what might be done with a minimum of effort to improve the situation.

FIGURE 2

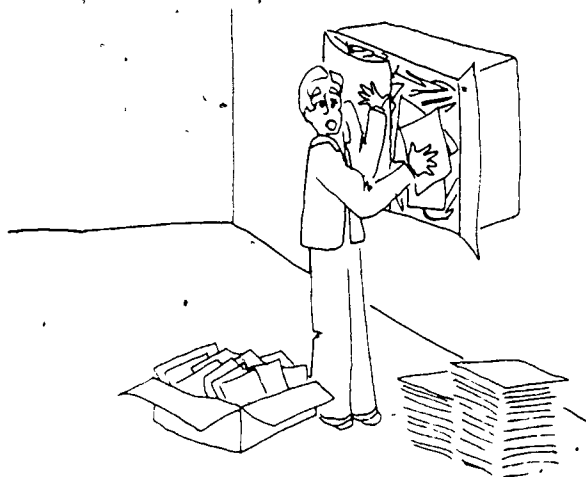
RECOMMENDED LABORATORY SPACE FOR SELECTED OCCUPATION PROGRAMS¹

Occupation	Square Feet Per Student	Additional Storage	Number of Students
Accounting	30-35	10-15%	18-24
Appliance Service	130-150	20%	16-22
Auto Body or Mechanic	180-250	10-20%	16-22
Building Trades	125-150	20%	16-22
Business Machine Service	50-70	15%	16-22
Cabinet & Carpentry	125-150	20%	16-22
Child Care	60-85	15%	15-20
Commercial Art	50-70	15%	16-22
Cosmetology	80-125	10%	16-22
Drafting	55-80	5%	20-26
Electricity or Electronics	50-70	10%	16-22
Graphic Arts	80-125	15%	16-22
Marketing	45-75	10-15%	20-24
Machinist	130-180	15%	16-22
Medical Assistant	95	15%	16-22
Needle Trades	70-85	10%	15-20
Nursing	85	20%	20-24
Sheet Metal	80-115	10%	18-22
Typing	25-30	10-15%	25-60
Waiter-Waitress	50-65	20%	18-22
Welding/Metal Fabrication	130-160	15%	18-22

¹ Adapted from George Storm, *Managing the Occupational Education Laboratory* (Belmont, CA: Wadsworth Publishing Co., Inc., 1976), pp. 45-46.

Storage

You need to store many things in your laboratories. Student supplies, materials, small tools, instruments, special equipment, student projects, instructional materials and devices, and school records all must have convenient, safe, and appropriate storage. If storage is inadequate or of the wrong kind, the situation creates problems for you.



There are several things you as a laboratory teacher should do about storage needs.

1. Determine the type of items that require storage in your occupational program.
2. Identify the special storage requirements for each of the types of items.
3. Survey the storage facilities available in the existing laboratory for each type of material, and determine the adequacy of the facilities.
4. Prepare plans for improving storage in the laboratory.
5. Implement the plans by changing the storage facilities, and/or present your needs to the school administration.

Each vocational education area has its own particular storage needs and problems. A beginning teacher will identify these special needs by drawing on his/her knowledge and experience in the occupation, by visiting other successful laboratory teachers in the area and discussing common problems, and by reading journals devoted to that phase of vocational education. Common to all vocational areas, however, are (1) the need for convenient storage to minimize the effort needed to handle and control the material, (2) the need for safety in the storage of hazardous substances, (3) the need for security from damage or unauthorized use, and (4) the need for an adequate amount of storage for present and future use. Following are some specific guidelines for planning laboratory storage facilities.

Materials storage should be convenient to the service entrance through which it's delivered, and close to the point of use in the laboratory. It should not be necessary to carry large materials through the working area. It should also be easy for you to locate the needed supplies quickly and take inventory of the stock accurately and conveniently.

Materials should be visible and organized, not stacked behind each other on shelves or stored in difficult to reach places. Storage spaces should be well lighted. A metals supply rack, for example, should be located so the long bars can come straight in the service entrance, and the material sorted by type of metal and size so any desired piece can be located quickly.

Many vocational areas use materials and supplies that require specific safe storage conditions. The materials may be flammable, explosive, toxic, corrosive, or have other hazardous characteristics. Examples of these kinds of materials are tanks of welding gases, acids, paints, and solvents.

Local fire codes involving these kinds of materials must be complied with. Typically, flammable liquids should be stored in a concrete storage room, outside the laboratory proper. The regulations of the Occupational Safety and Health Administration (OSHA) describe the required storage facilities for all such material. Every vocational teacher should obtain a copy of OSHA regulations from the agency's regional office and follow the regulations scrupulously.

Some laboratory materials need to be stored in controlled conditions if they are to maintain their quality and perform properly. Food and photographic film should be stored at fairly low temperatures. Furniture lumber and printing papers need to be stored in conditions of controlled humidity. Cleanliness is a special requirement for storing office supplies and photographic supplies.

Certain drugs and chemicals should be kept in a dark place. Extreme precision tools and equipment (e.g., the gauge blocks used in tool and die making) must be kept at a uniform temperature if they are to function accurately. You will need to determine the materials in your laboratory that require such special storage.

It is becoming increasingly important to safeguard materials and supplies from theft, loss, or misuse. Almost all materials in the laboratory are subject to abuse of some kind, but there are particular problems in some vocational areas.

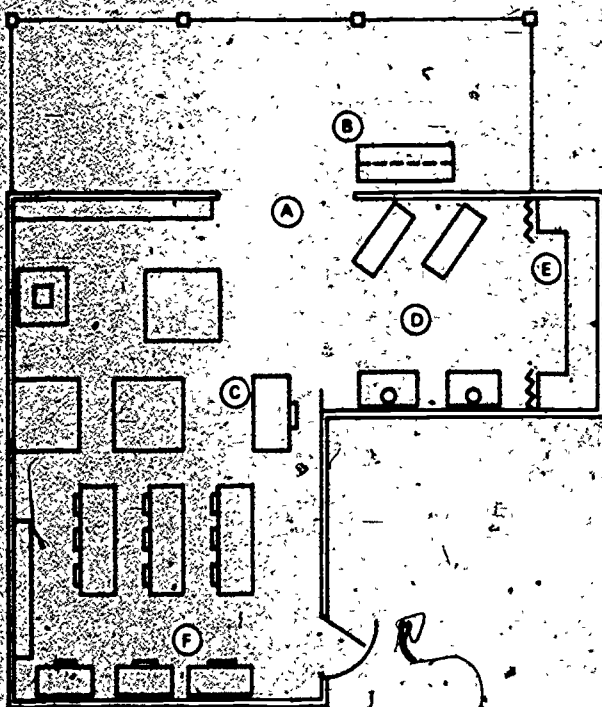
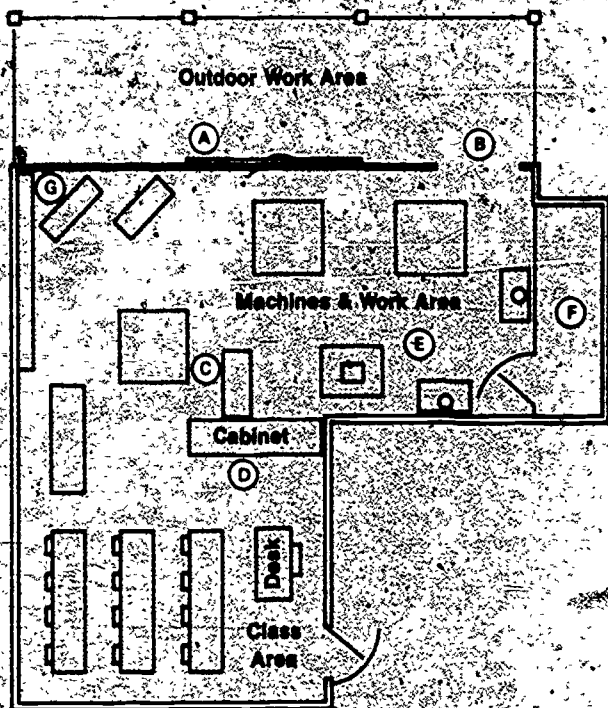
Gold and other precious metals used in a dental technician program need safe storage. Health oc-

FIGURE 3 /

PLAN DRAWINGS

I Laboratory Layout Presenting Many Problems of Organization

- (A) Outdoor tool panel lacks security
- (B) Service door small, difficult to monitor
- (C) Traffic lane obstructed
- (D) Cabinet blocks teacher's view
- (E) Machine area out of sight from teacher's station
- (F) Supply room difficult to control
- (G) Storage rack inaccessible



II Problems Minimized

- (A) Service door enlarged and relocated for accessibility
- (B) Portable tool panel can be moved into laboratory
- (C) Teacher's station relocated for better control
- (D) More floor space for project work
- (E) Open storage permits better supervision
- (F) Individual study area provided

occupations laboratories must take extremely thorough precautions in the storage of drugs, hypodermic needles, and syringes; and should control them as they are controlled in a hospital. Small and valuable electronics parts, valuable metals, and expensive small tools and instruments may need to be kept in locked storage cabinets.

Central storerooms serving several laboratories, and tool rooms located within a single laboratory are losing favor among vocational teachers. Tool panels located near the work stations where they will be used are usually much more efficient. If there is a specially designed and designated holder for each tool or instrument, the student can locate it quickly and you can make a check of the panel conveniently and accurately at the end of the class period. Some tools and instruments, of

course, may be too delicate, or large, or expensive to be placed on an open panel.

There are several techniques that you may use to get the most out of the storage space that is available in the laboratory.

- Use the space under workbenches for storage of bulk and sheet materials.
- Store long and light materials (e.g.; molding, plastic rods) vertically instead of horizontally.
- Use outdoor space to store weatherproof materials that are needed only infrequently.
- Cut large stock and divide bulk materials into the smaller sizes that will actually be needed by students, storing the small materials on shelves or in cabinets.

The Laboratory Environment

You have direct responsibility for the environmental conditions in the laboratory. It is important that the environment be one that is conducive to student learning and that is a safe and healthy one in which to work. The factors that must be considered in planning and providing for a good environment are (1) illumination, (2) atmospheric conditions, (3) acoustics and sound control, and (4) aesthetics and color. Laboratories that are noisy, dark, uncomfortable, or ugly cannot provide the setting necessary for efficient learning or pleasant associations with the work of the occupation.

In some school situations, you may have only limited control over these conditions. The custodian may regulate the temperature and room ventilation, while acoustics and room appearance may be integral with the building and difficult to improve. In any case, however, you should check existing conditions, compare them with the ideal, and develop some plan for any needed improvement.

The plan may simply be to document the needs and present them to the school administration (or school evaluation committee), or gradually to seek resources and permission to get the job done. You need to work cooperatively with the custodial staff to be sure that all the service systems are working properly and that the environmental requirements of the laboratory are being met as well as possible.

Another sound problem is that of poor acoustics. If sound is reflected by walls and ceiling, and reverberation times are long, speech becomes unintelligible. Reverberation is the continuation of the sound after the source has stopped. Hard surfaced building materials, such as concrete and tile, reflect sound and increase the echos. Carpets,

draperies, and acoustically treated ceilings are the standard remedies for reflected sound.

Illumination

One basic factor in organizing any vocational laboratory is that of providing proper lighting for the work to be done there. Insufficient or improper illumination can be depressing to students, cause fatigue, be a safety hazard, and lead to errors or poor quality work. If nothing more, you should be



able to maintain reasonable illumination by (1) making sure the lighting system is functioning properly, (2) turning on lights when they are needed, (3) having bulbs and tubes replaced with the appropriate type as needed, and (4) having tubes and fixtures cleaned at regular intervals.

The lighting in the laboratory should be sufficient for the type of work being done. Simple tasks which involve manipulating large objects require only a normal level of illumination, while fine and accurate work requires high level illumination. There are detailed tables available showing recommended lighting standards for almost all fields of work. If you are interested, you may consult this information. However, the standards are stated in foot-candles, a unit of measure that requires the use of a light meter to determine. A more general description of lighting needs follows.

Very Low Lighting

- T.V. viewing
- storage rooms

Moderate Lighting

- waiting lounges
- conference rooms

Good General Lighting

- classrooms
- reading
- assembly processes

High Level Lighting

- drafting
- sewing
- inspection

Very Bright Lighting

- extra fine assembly
- color identification
- very severe visual tasks

The **amount** of light is not the only important factor in providing good lighting; the **quality** of the light should also be considered. Natural light provided by north windows is, in general, excellent, but it is obviously affected by weather conditions and time of day. In addition, recent trends in energy conservation tend to reduce window sizes. Good general illumination is free of glare and even, with low contrast between the work area and the background. Well-designed fluorescent lighting can provide this.

The color characteristics of the light should be chosen for the type of laboratory. This can be done by selecting the appropriate tube or bulb. Fluorescent lighting tubes, for example, are available in several types that have slightly different color characteristics. The "cool white" type is the kind usually used for general classroom illumination, and has a natural and pleasing balance of white light. "Warm white" is somewhat pinkish in tone, while "daylight" tubes are designed to simulate natural noon light as closely as possible. The common household light bulb (the incandescent bulb) gives a warm light in a concentrated area. Following are some examples of lighting situations.

- Food service areas should use "warm white" fluorescent tubes to make foods (especially meat) look more appetizing.
- Cosmetology laboratories also use "warm white" light because flesh tones are more appealing.
- Reading and general classroom work should be lighted by "cool white" tubes.
- Colors are most accurately rendered in "cool white" or "daylight" illumination. Textile laboratories, fashion design laboratories, and graphic arts shops should have "daylight" illumination available.
- Incandescent bulbs can be used to provide an intense spot of light for demanding visual tasks or for display.
- Special lights may be required for certain technical processes (e.g., orange or red safe-lights for photographic processing, ultraviolet light for metal inspection, special fluorescent light for stimulating plant growth).

Atmospheric Environment

Laboratories that are too hot or too cold, badly ventilated, or with humidity that is too high or too low cause students to be physically uncomfortable and thus present a less than ideal environment for learning. In severe conditions, the laboratory environment may actually pose a threat to the health of students and teacher alike. It is your responsibility to see that student health is not jeopardized by potentially harmful dust, exhaust emissions, fumes, and gases that may originate in the laboratory.

The best laboratory atmosphere will be one in which the air is clean and odorless and free of harmful gases. The air will be continually moving but without sharp drafts, at an appropriate temperature for the activities taking place in the room, and at a comfortable level of humidity. In spite of modern heating and cooling systems and specially designed exhaust systems, such an atmosphere is not always easy to achieve. The situation is not helped any by the fact that some vocational laboratories are in quarters not originally planned for them. For example, what may be a satisfactory heating and ventilating system for a standard classroom may be woefully inadequate for an active laboratory.

The optimal temperature for a laboratory will vary with the type of work. Very active, heavy work (e.g., masonry, foundry) may best be done at 65 F., or even lower. Inactive, light, and very accurate work (e.g., watch repair, drafting) requires a room at about 72 F. Humidity (if it can be regulated at all) should generally be maintained at about 30 percent for maximum comfort and health.

Many laboratories have their own problems of ventilation. The technical processes involved in some occupations produce excessive heat, fumes, and noxious odors that must be removed from the environment as quickly as they occur. The standard practice is to install a metal collector hood over the source area and use an exhaust fan to vent the fumes to the outside. In the case of dust, a central vacuum system is often used, with inlets placed in several locations in the laboratory and the dust collected in large cloth bags that must be emptied periodically. It is not a satisfactory solution to simply disperse the pollutants by moving the air through the laboratory with a circulating fan.

Among the special environmental problems in vocational laboratories are the following.

- Toxic fumes may be irritating, debilitating, or even lethal. They must be removed quickly and thoroughly by exhaust systems. Examples are: welding (particularly with some metals such as zinc), photographic and cleaning chemicals, gasoline engine exhaust emissions, and certain adhesives.
- Smoke and particles in the air must not only be removed from the source, but should be filtered out of the air. This problem exists in food preparation, spray painting, and wood-working.
- Excessive heat is usually readily dealt with by simple exhaust systems. This condition often occurs in metal foundry, food preparation, and dry cleaning laboratories.
- Strong odors, though they may not be hazardous, are very unpleasant and should be controlled before they affect the rest of the school. Removing the source and exhausting the air are the usual remedies.
- Many technical processes require very strictly regulated conditions of temperature and/or humidity. Examples are: furniture finishing with lacquers, plant growing areas in ornamental horticulture, and chocolate candy making. Laboratories in which these kinds of activities take place must be planned to include the specialized equipment needed to maintain the required environmental conditions (e.g., humidifiers, dehumidifiers, auxiliary heaters, air conditioning and refrigeration equipment, blowers, etc.).

Sound Control

Where students are actively working and machines are in operation, there is going to be some noise. The crucial matter is to keep the sound at a level that is not fatiguing or harmful, and

that allows students and teacher to communicate easily and accurately. Since a considerable proportion of instruction is through speech, if students can't hear clearly, they will have difficulty learning.



Continuous loud noise inside the laboratory can be more serious than is usually realized. Common responses to noise are irritability, tension, and inability to concentrate. Prolonged exposure to high noise levels can cause temporary hearing loss, and eventually, permanent damage. This kind of noise is often given off by electrically powered machines such as wood routers, saws, and planers, and by small gasoline engines.

Machine noise may be controlled by surrounding the motor with fiberglass or similar insulation. Or, it may be controlled by mounting the machine on pads (like cork) to prevent the noise and vibration from being transmitted to the floor. It may be possible to build an enclosure, covered on the interior with acoustic material, for a noisy machine. In clean laboratory areas, carpeting the floor can bring down the noise level significantly. If noise control can't be built into the laboratory facility, students will have to be required to wear ear-protection devices.

Attractive Environment

It may seem that a vocational laboratory need not be physically attractive as long as it allows the students to learn the skills of the occupation. There are, however, some genuine benefits to having a working environment that is pleasing in its order and proportions, colorful, and varied in materials.

Students should work in a setting that is at least of the standards that apply in the occupation so

they become familiar with the setting and associate with it. Learning in surroundings that are attractive generates good feeling and pleasant associations so students will want to continue learning, rather than escape from it. Careful selection of color can affect students psychologically and can have a beneficial stimulating effect. In your efforts to improve the laboratory, you can organize furniture and equipment to present an ordered appearance, select colors for walls when the laboratory is periodically repainted, and add simple touches such as plants or posters to enhance an otherwise sterile setting.

Colors, in particular, have an important effect on the appearance of the laboratory. Some colors tend to soothe and relax, others stimulate and excite, while still others depress and irritate. Yellow appears cheerful, reds are stimulating, blue calms and appears cool, and green has pleasant associations with nature.

Applied to a laboratory, lighter colors tend to make the room seem larger, dark colors make it



appear smaller. Warm colors (the yellows, browns, and reds), suggest hospitality, friendliness, and security. The cool greens and blues, on the other hand, are associated with efficiency and accuracy. You may create the psychological environment you desire by carefully selecting colors for the various parts of the laboratory.

Laboratory Planning Sequence

You may be a teacher in a new professional position or a continuing teacher ready to add a new instructional area to the vocational program. Or, you may be a teacher who simply wants to reevaluate and review the adequacy of his/her laboratory instruction. You will need to establish a logical sequence of work in order to take all factors into consideration and arrive at a rational laboratory plan. The following is a suggested planning sequence for reorganizing an existing facility.

1. Review the statements of educational goals and objectives for your vocational program.
2. List the learning activities that are to take place in the laboratory.
3. Examine the equipment and supply lists for the projected learning activities.
4. Determine all the major dimensions of the existing facility, including storage rooms, doors, windows. Use a measuring tape to obtain reasonably accurate measurements.
5. Figure the total square footage of the laboratory, divide by the anticipated student enrollment to determine adequacy of the space in terms of square feet per student.
6. On graph paper or using a drawing board, make a plan drawing of outside walls, partitions, storerooms to scale. Indicate location of doors and windows.
7. On the drawing, indicate the other perma-

nently fixed-objects in the laboratory (e.g., sinks, counters, very large machines, gas lines, exhaust fans, hydraulic lifts, etc.).

8. Determine the approximate boundaries of each of the desired activity areas to be included in the laboratory.
9. Arrange the furniture and equipment on the plan drawing. Use scaled patterns or models of the equipment. Consider relationship of the storage of tools and materials, sequence of operations, safety zones, operation space, traffic lanes. Experiment with many alternative arrangements. When the arrangement has been decided on, draw the outlines of the furniture and equipment on the plan view. Label each piece.
10. Determine location of auxiliary equipment and facilities (e.g., tool panels, supply racks, chalkboard, display, etc.).
11. If applicable, decide on color schemes for walls, equipment, furniture, carpeting.
12. Prepare a set of notes giving information about procedures for implementing the laboratory organization plan. This may include any necessary remodeling, additional equipment, new furnishings, painting and cleanup, and moving.
13. Prepare a step-by-step plan for completing the reorganized and improved laboratory.



Obtain a copy of the regulations of the Occupational Safety and Health Administration. This government document, called *Occupational Safety and Health Standards*, is available to you by writing or telephoning the local area office of OSHA nearest you. The location and number can be found in city telephone directories under U.S. Government, Department of Labor. Copies of this publication are also available in the Government Documents section of university libraries.

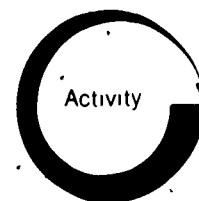
Read the contents page to become familiar with the organization of the document, then read the sections dealing with the materials or equipment commonly used in your specific vocational education laboratory.



For more information on the principles and procedures involved in planning and organizing a vocational laboratory, you may wish to read Storm, *Managing the Occupational Education Laboratory*, pp. 33-81.



You may wish to view the slide/tape presentation, "Organizing and Maintaining the Vocational Laboratory."



The following items check your comprehension of the material in the information sheet. Organizing the Vocational Laboratory, pp. 6-21 Each of the seven items requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

SELF-CHECK

1. There are many things to consider when planning your vocational facilities. One of the most important is ensuring that the facilities themselves will meet educational needs and requirements. What does this mean to you as a vocational teacher as you begin planning for improving your own laboratory?

2. Probably few laboratory teachers feel that they have enough space in the laboratories for all the things that need to be done there. How can you determine whether in your specific program you have adequate space (if it were used efficiently) or whether you have legitimate grounds to ask your school administration for an addition to your laboratory?

3. What principles of planning should you use to determine the kinds of storage space you need in the laboratory for your occupational service area?

4. Perhaps you have heard vocational teachers say, "The ventilation and noise in my laboratory are really bad, but the students and I get used to it after awhile and never notice it." Does this statement agree with what you know about good environments for learning? Explain your response.

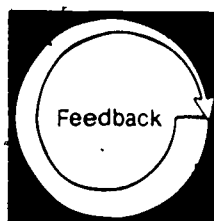
5. Suppose that in your training program there are at least some operations or processes that involve very concentrated tasks requiring fine or very accurate workmanship. How does this affect the design and organization of your laboratory?

6. If a fellow teacher were having some discipline problems with his or her class, how could this teacher organize the laboratory facility to help minimize the chances for behavior problems?

7. After the students have left for the day, you wander over to the laboratory next to yours for a bit of relaxed conversation. The teacher pushes some papers off a chair and motions for you to sit down while she heats water for tea over a bunsen burner. As you and Daisy Rafferty have your tea together, you mention that you have some ideas for improving your laboratory and are going to read the regulations of the Occupational Safety and Health Administration (OSHA) to be sure that your lab meets their safety requirements.

Daisy tosses her used tea bag at the wastebasket (and misses), then replies, "I wouldn't bother about OSHA. That's for industries, not schools—and besides, they'll never come around here to check up, so why should we worry? We can't do anything about these labs anyway—that's the school board's responsibility."

How would you respond?



Compare your written responses on the Self-Check with the Model Answers given below. Your responses need not exactly duplicate the model responses, however, you should have covered the same **major points**

MODEL ANSWERS

- 1 You must remember as you plan your laboratory that the most important concern is that of furthering the instruction of students. The laboratory is not designed for your use or to please the administration. Plans for reorganizing or replanning a vocational laboratory must begin with a clear conception of the goals and objectives of the specific occupational training program, and planning must be done to make the laboratory help in the achievement of these objectives.

Another educational requirement that should dictate the nature of the facilities is that of the teaching approach to be used. The laboratory should facilitate using the selected instructional methods. The student project method may call for large areas of open floor space, while the individualized competency-based approach should have individual study carrels in the laboratory for student use.

All aspects of the design and organization of the laboratory should be concerned with the welfare of students and teacher. Anything that hampers learning, such as noise, confusion, or inadequate lighting, should be corrected. Laboratories should help make learning easier and more pleasant—not more difficult. If fulfilling these educational requirements entails the expenditure of money or effort, then these resources should somehow be found.

- 2 Determining whether or not you have adequate space in your laboratory need not be a matter of guesswork or personal preference. There is a definite procedure that will help
 1. Measure the existing laboratory space and determine its major dimensions. Do not include the storage areas.
 2. Calculate the total square footage (area) of the laboratory. In a rectangular room figure the length times the width, in feet. In an irregularly shaped space you may have to figure small areas separately and add them all together.
 3. Estimate the maximum number of students that will be enrolled in any one class.

4. Divide the total square footage of the laboratory by the number of students.
5. Compare the result with the recommended standards of square feet per student for your specific laboratory subject. (Consult Figure 2, or the reference given there.)
6. If the space is adequate, or even generous, consider yourself fortunate. If it is inadequate, take steps to limit enrollment or, much better, acquire additional space.

- 3 Not only should a laboratory have **sufficient** storage space, it should also have the right **kinds** of storage for tools, materials, equipment, and projects. As you plan for storage, the first step is to identify all the materials to be used in the program that will require storage of some kind. From this list, it should be possible to identify the special storage conditions that are required, whether this is a matter of security, safety, atmospheric conditions, or size.

It may be easier to determine the storage needs of the materials than to determine the kinds of storage that will satisfy those needs. You may want to consult OSHA guidelines if the problem is one of storing hazardous materials. It is also helpful to consult the literature of the occupational area, draw on personal experience in industry, or visit other laboratories with exemplary facilities. Other standard references for building construction, such as *Architectural Graphic Standards*, can also suggest solutions to storage problems.

4. You may become accustomed to conditions, and you may no longer consciously notice the problems, but your body is affected nonetheless. The wrong temperature, poor air quality, or inadequate light tend to create physical and psychological difficulties. Students may suffer loss of interest, tension, depression, or inability to concentrate, and no one may realize that the cause is the environment of the laboratory itself. Excessive noise, for example, may have very definite ill effects even though you claim that you don't hear it anymore.

The quality of the laboratory environment should be assessed on as objective a basis as possible. If necessary, you can measure the light in the room, check the temperature, and measure the humidity. Noise levels (and their effects) and air quality are more difficult to determine, so it may actually help if an outside observer is called in to make an objective evaluation of these conditions. The laboratory environment must be obviously wholesome, not simply tolerable.

5. The requirements for each such demanding task may be somewhat different, but in general there are some design considerations that should be considered. For fine and accurate work, very high light levels are needed, free of glare and with little contrast between the work and background.

The laboratory area where the demanding tasks are done should be as quiet as possible because noise interferes with concentration. It should also be free of distraction and disruption, so an isolated or separated area may need to be provided. Because the student will be relatively inactive when doing the work, there should be a gently moving flow of air of the right temperature. All of these factors will have to be considered when the laboratory is organized.

6. A poorly organized laboratory may actually be conducive to poor behavior, while a thoughtfully planned one can minimize behavior problems. Reorganizing the laboratory is not likely to change a disruptive group of students to quiet and conscientious workers, but it can help. There are a number of things your fellow teacher can do to the laboratory.

- Check that he/she can see student activity in all parts of the room from any place in the room. Remove any obstacles to vision and hearing.
- Locate his/her desk or work station so that it controls the entrances and exits to the laboratory.
- Locate tool panels and storage so they are a short distance and in a direct line from work stations to prevent students from disturbing each other as they pass.
- Design tool panels that can be readily checked. Keep hazardous or valuable items in secure storage.

- Provide wide aisles and clear walkways so he/she can move quickly to a trouble spot.
- Control machine noise by padding and/or insulation. Noise begets more noise, which leads to difficulty in learning.

7. Daisy seems to be grabbing at any excuse to avoid thinking about her laboratory. She needs to understand that the safety guidelines and regulations of the Occupational Safety and Health Administration do indeed apply to school laboratories, and they have the force of law.

Up to this time, the major enforcement effort has been in industrial plants, but that is no reason for vocational laboratory teachers to feel complacent about their facilities. It is the responsibility of all vocational teachers to know the local and national safety regulations that apply to their occupations, and to make every effort to see to it that their laboratories comply.

It is important that vocational laboratory facilities be as efficient and safe as they can be. The health and safety of the students (and the teacher) are of paramount concern, and any recommendations that will help to make working in the laboratories safe and pleasant should be investigated. Students should also learn what safe working conditions should prevail in their chosen occupations, and they can do that by working in a laboratory that represents a model of excellence. The habits that they acquire in your training program and the lessons they learn about shop organization will stand them in good stead when they have responsibility for their own establishments.

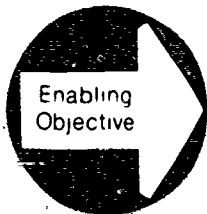
The OSHA regulations and guidelines can help to make a strong case to your school administration when the opportunity arises to renovate or reorganize the laboratory. The weight of the federal government is behind those regulations which is hard for any administrator to ignore.

Your plans for improving the laboratory will have more impact if you can show they are not just the result of personal preferences, but are based on the recognized requirements of the occupation. Every vocational teacher is responsible to at least some degree for his or her laboratory and should not pass off that important responsibility to others.

LEVEL OF PERFORMANCE: Your completed Self-Check should have covered the same major points as the model responses. If you missed some points or have questions about any additional points you made, review the material in the information sheet, *Organizing the Vocational Laboratory*, pp. 6-21, and in *Occupational Safety and Health Standards*, or check with your resource person if necessary.

Learning Experience II

OVERVIEW



Given an actual vocational laboratory in your occupational specialty, evaluate the organization of the laboratory and develop plans for its improvement.



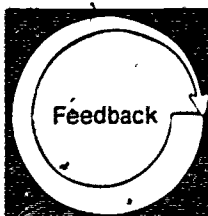
You will be visiting a vocational laboratory in your occupational specialty and collecting information about the laboratory and its organization.



You will be evaluating the effectiveness of the laboratory organization, using the Vocational Laboratory Observation Checklist, pp. 31-32, and writing a summary report and recommendations for the organization of the laboratory.



You may wish to refer to the journals and periodicals that serve your vocational service area for up-to-date ideas for vocational laboratories.



Your competency in evaluating the organization of a vocational laboratory and developing plans for its improvement will be evaluated by your resource person, using the Laboratory Planning Checklist, pp. 35-36.

Arrange through your resource person to visit a vocational education laboratory that trains students in the basic or beginning courses of your occupational specialty, and to observe an ongoing program.



Activity

During your visit, note the learning activities taking place, how the students are going about their tasks, and the efficiency with which laboratory work is being accomplished. Obtain the major dimensions of the laboratory and the location of the major fixed items of construction or equipment (e.g., doors, windows, sinks, exhaust fans, etc.) that affect the laboratory arrangement.

If there is no laboratory available to you that is directly concerned with your vocational interests, visit a laboratory that is as closely related as possible.

Using the Vocational Laboratory Observation Checklist, pp. 31-32, examine the laboratory facilities and evaluate each item given on the checklist. Add any items to the checklist that are specific and important to your occupational area.



Activity

Prepare a summary report of your recommendations for improving each area of the laboratory facilities. Be specific and positive in your statements. Limit your comments to the planning and organization of the facilities, not the content of the program or the management of students.

Prepare appropriate drawings, sketches, plans, photographs, or descriptions that will help you present your ideas for reorganizing and/or replanning the laboratory.

VOCATIONAL LABORATORY OBSERVATION CHECKLIST

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a component was not applicable to the particular laboratory you are visiting, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

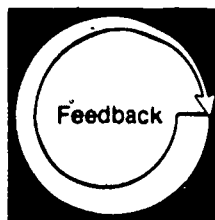
LEVEL OF PERFORMANCE

	N/A	No	Partial	Full
1. Each student is provided with a work area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. of adequate size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. appropriate to the laboratory activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. equipped with needed tools or instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Each student is provided storage space:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. for personal effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. for projects and unfinished work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The laboratory floor space meets recommended size for the occupational service area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Storage for laboratory equipment and supplies:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. is adequate in size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. is suitable for the materials to be stored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. meets safety standards for hazardous materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Storage for customer work:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. is adequate in size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. provides needed security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The arrangement of the major pieces of equipment in the laboratory:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. allows for sufficient working area around each piece	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. permits quick and easy access by the teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. permits the teacher to monitor student laboratory activities at all times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. provides traffic lanes for people and materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Cleanup facilities are provided:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. for the students and teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

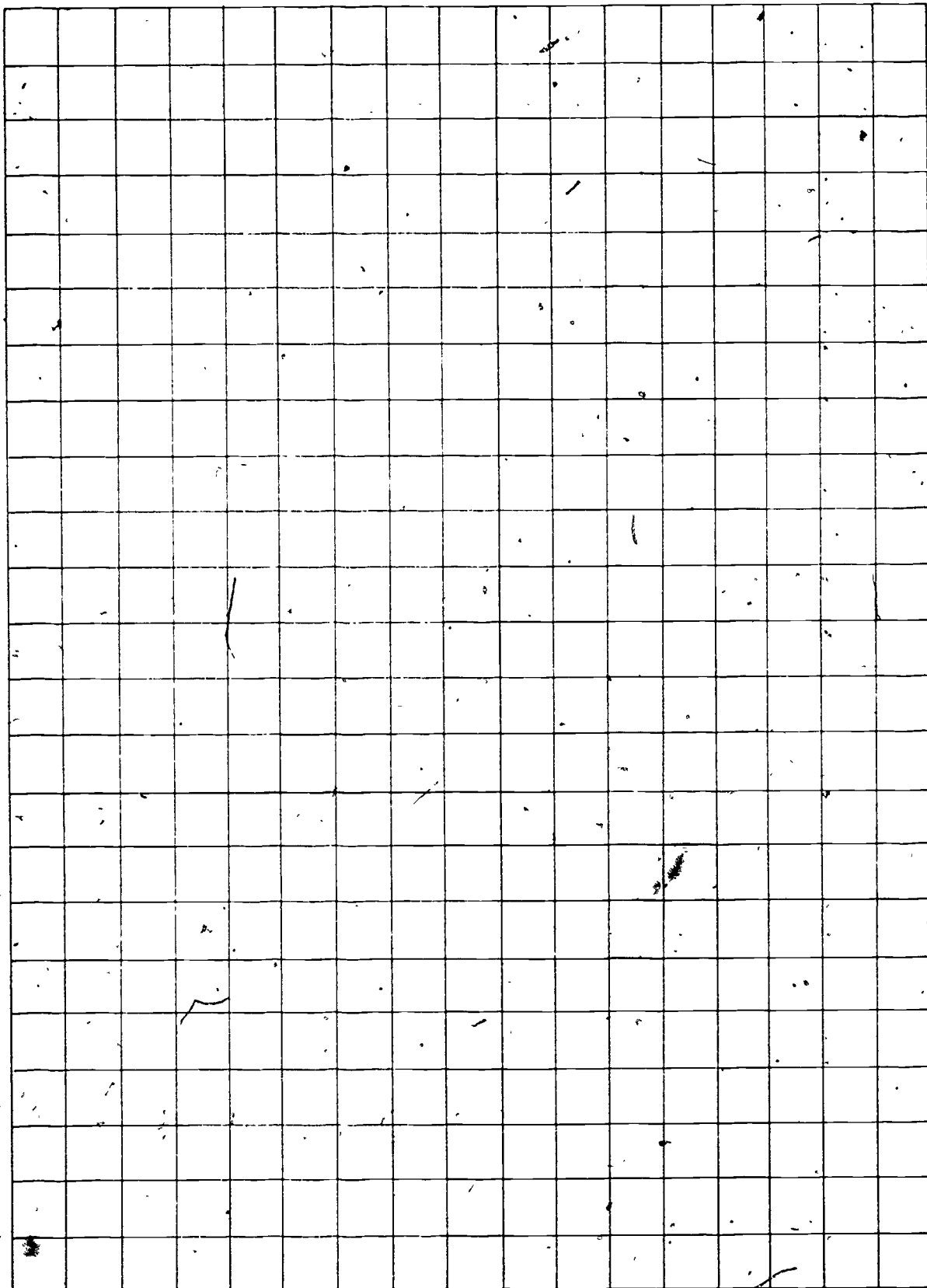
	N/A	No	Partial	Full
b. for the laboratory itself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. The working environment of the laboratory:				
a. provides adequate general ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. provides special ventilation for problems of smoke, noxious fumes, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. maintains healthful temperature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. The illumination in the laboratory:				
a. is adequate for general work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. provides recommended lighting for special tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Sound control:				
a. is maintained at safe levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. permits instruction to be given without difficulty or interference	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. There are areas within the laboratory for:				
a. individual study or instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. small-group instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. class instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. An attractive and suitable waiting area is provided for customers and/or clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Appropriate occupational conditions and standards are simulated as closely as possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Appropriate media facilities are provided:				
a. for individual students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. for total class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. A convenient teacher's station is provided within the laboratory ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Bulletin board and exhibit areas are provided in the laboratory ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



For creative and up-to-date ideas for vocational education laboratories in your specific vocational service area, refer to the journals and periodicals serving your field. You may find it useful to browse through the issues of the last year or two, looking not only at the formal articles on the subject of laboratory planning, but also advertisements for laboratory equipment. Some vocational periodicals have annual planning issues that are particularly valuable (e.g., the April issues of *Industrial Educator*).



After you have evaluated the vocational laboratory and developed plans for its improvement, arrange to have your resource person review and evaluate your work. Give him/her the Laboratory Planning Checklist, pp. 35-36, to use in evaluating your work.



Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name / _____

Date _____

Resource Person _____

In evaluating the laboratory, the teacher:

1. made an evaluation of all the appropriate areas of the laboratory
2. applied general principles of laboratory planning and organization to the specific situation
3. accurately identified the important characteristics and major deficiencies of the laboratory
4. dealt only with laboratory facility planning and organization rather than management

5. corrected all the major deficiencies identified in the laboratory
6. were feasible and practical in application
7. were realistic in terms of the actual school situation
8. were in keeping with the goals and objectives of the vocational education program
9. were presented in a well-organized, clear, and readable form
10. made adequate provision for:
 - a. individual and group instruction
 - b. materials and equipment storage
 - c. safe handling of hazardous materials and processes
 - d. student traffic lanes
 - e. student work stations
 - f. efficient operation of equipment
 - g. special environmental requirements of the occupational technology

N/A **No** **Partial** **Full**

[illegible]

LEVEL OF PERFORMANCE: All items must receive FULL, or N/A responses. If any item receives a NO, or PARTIAL response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

Learning Experience III

FINAL EXPERIENCE



In an actual school situation*, organize the vocational laboratory.

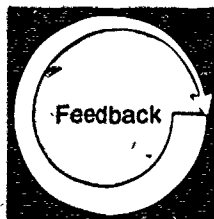


As you conduct your teaching activities, organize the vocational laboratory for which you are responsible. This will include—

- collecting information about the organization of the existing vocational laboratory
- evaluating the design and organization of the laboratory
- devising a plan for improving the vocational laboratory
- implementing your plan for improvement

NOTE: Due to the nature of this experience, you will need to have access to an actual school situation over an extended period of time (e.g., four to six weeks).

As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes. If you were unable to implement any of the items in your plan at this time, document the reasons why the item(s) was not implemented.

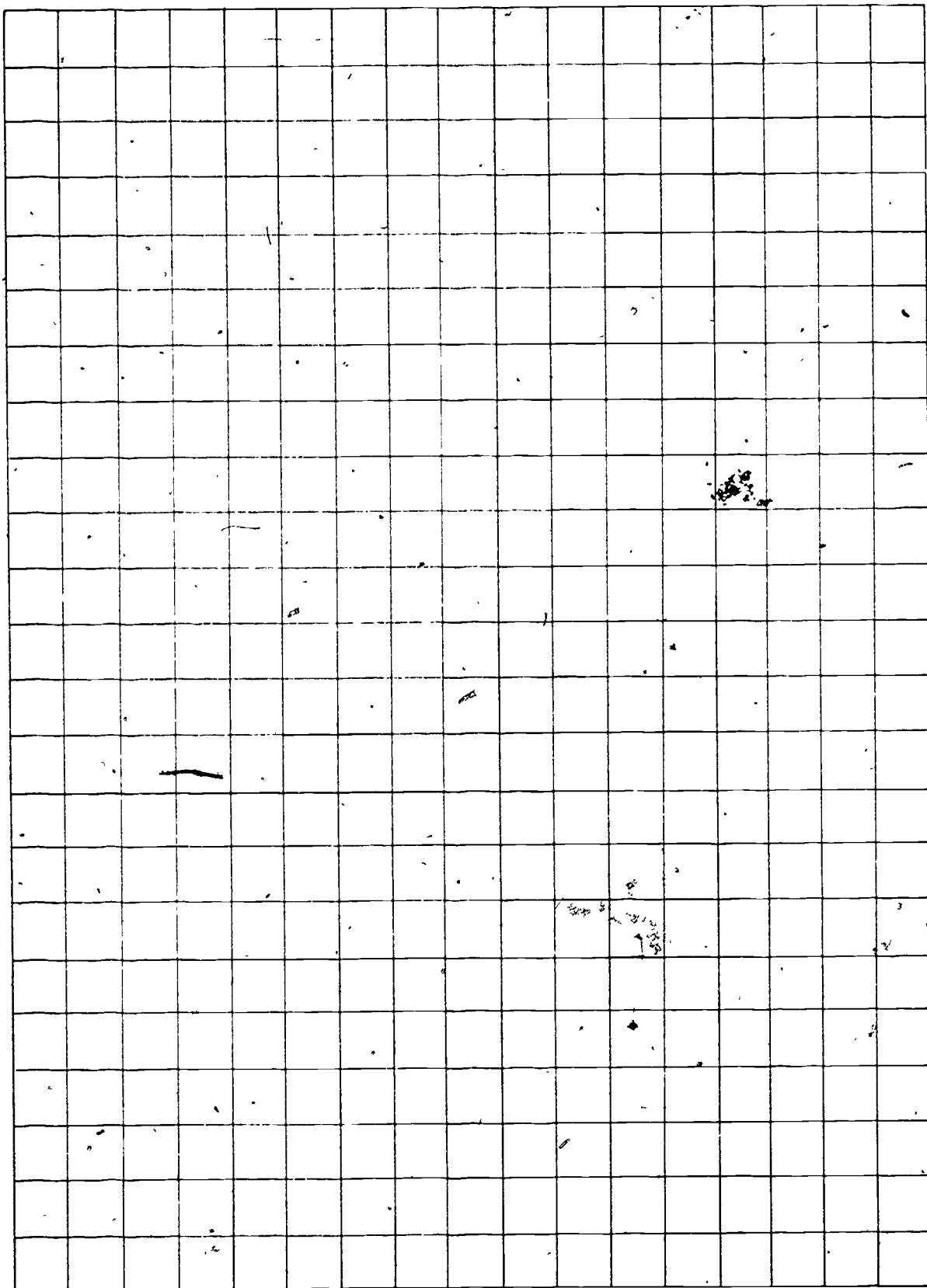


Arrange to have your resource person review your documentation and your plan, and visit your vocational laboratory after you have organized or reorganized the facility according to your plan.

Your total competence will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 39-40.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in organizing a vocational laboratory.

For a definition of actual school situation, see page 37.



TEACHER PERFORMANCE ASSESSMENT FORM

Organize the Vocational Laboratory (E-8)

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

LEVEL OF PERFORMANCE

In evaluating and planning for the organization of the vocational education laboratory, the teacher:

- | | N/A | None | Poor | Fair | Good | Excellent |
|---|--------------------------|--------------------------|--------------------------|--------------------------|------|-----------|
| 1. reviewed the broad goals and specific objectives of the program to determine their effect on the laboratory facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 2. reviewed student learning activities to determine their effect on the laboratory facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 3. reviewed instructional procedures and techniques to determine their effect on the laboratory facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 4. obtained recommendations on laboratory organization from the advisory committee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 5. involved students in organizing the laboratory | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6. reviewed local and national safety regulations relative to laboratory organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 7. considered security precautions for the laboratory and its contents | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 8. reviewed occupational conditions and standards to make the laboratory simulate the occupational environment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 9. reviewed recommended standard specifications for laboratories in the specific vocational education area | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |

In organizing, or reorganizing the laboratory, the teacher:

- | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--|--|
| 10. provided each student with an adequate work area | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 11. provided each student with storage space for laboratory work and personal effects | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 12. provided for student cleaning and sanitation facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |

	N/A	None	Poor	Fair	Good	Excellent
13. provided adequate storage for laboratory equipment and supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. planned traffic patterns to avoid hazards and congestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. arranged the equipment and work stations to allow the teacher to monitor and control laboratory activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. organized the laboratory to facilitate maintenance and cleanup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. provided for the safe handling of hazardous materials and operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. provided an attractive and aesthetic environment, within the context of the occupation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. provided a safe and healthful working environment for students in terms of:						
a. ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. illumination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. sound control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. temperature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. organized the laboratory to facilitate instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. simulated appropriate occupational conditions and standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. provided an attractive and adequate waiting area for clients or customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. planned for efficient and effective use of the teacher's energies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. arranged the facilities to allow individual, small-group, and class instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. provided study areas as well as active work areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

ABOUT USING THE CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should enable you to achieve the terminal objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an inservice teacher.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills which you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the Introduction, (2) the Objectives listed on p. 4, (3) the Overviews preceding each learning experience, and (4) the Final Experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience, and thus can omit that (those) learning experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience and have access to an actual school situation, make the necessary arrangements with your resource person. If you do not complete the final experience successfully, meet with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped; (2) repeating activities; (3) reading supplementary resources or completing additional activities suggested by the resource person; (4) designing your own learning experience; or (5) completing some other activity suggested by you or your resource person.

Terminology

Actual School Situation . . . refers to a situation in which you are actually working with, and responsible for, secondary or post-secondary vocational students in a real school. An intern, a student teacher, or an inservice teacher would be functioning in an actual school situation. If you do not have access to an actual school situation when you are taking the module, you can complete the module up to the final learning experience. You would then do the final learning experience later, i.e., when you have access to an actual school situation.

Alternate Activity or Feedback . . . refers to an item or feedback device which may substitute for required items which, due to special circumstances, you are unable to complete.

Occupational Specialty . . . refers to a specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity).

Optional Activity or Feedback . . . refers to an item which is not required, but which is designed to supplement and enrich the required items in a learning experience.

Resource Person . . . refers to the person in charge of your educational program; the professor, instructor, administrator, supervisor, or cooperating/supervising/classroom teacher who is guiding you in taking this module.

Student . . . refers to the person who is enrolled and receiving instruction in a secondary or post-secondary educational institution.

Vocational Service Area . . . refers to a major vocational field: agricultural education, business and office education, distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher . . . refers to the person who is taking the module.

Levels of Performance for Final Assessment

N/A . . . The criterion was not met because it was not applicable to the situation.

None . . . No attempt was made to meet the criterion, although it was relevant.

Poor . . . The teacher is unable to perform this skill or has only very limited ability to perform it.

Fair . . . The teacher is unable to perform this skill in an acceptable manner, but has some ability to perform it.

Good . . . The teacher is able to perform this skill in an effective manner.

Excellent . . . The teacher is able to perform this skill in a very effective manner.

Titles of The Center's Performance-Based Teacher Education Modules

Category A: Program Planning, Development, and Evaluation

- A-1 Prepare for a Community Survey
- A-2 Conduct a Community Survey
- A-3 Report the Findings of a Community Survey
- A-4 Organize an Occupational Advisory Committee
- A-5 Maintain an Occupational Advisory Committee
- A-6 Develop Program Goals and Objectives
- A-7 Conduct an Occupational Analysis
- A-8 Develop a Course of Study
- A-9 Develop Long-Range Program Plans
- A-10 Conduct a Student Follow-Up Study
- A-11 Evaluate Your Vocational Program

Category B: Instructional Planning

- B-1 Determine Needs and Interests of Students
- B-2 Develop Student Performance Objectives
- B-3 Develop a Unit of Instruction
- B-4 Develop a Lesson Plan
- B-5 Select Student Instructional Materials
- B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution

- C-1 Direct Field Trips
- C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
- C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
- C-4 Direct Students in Instructing Other Students
- C-5 Employ Simulation Techniques
- C-6 Guide Student Study
- C-7 Direct Student Laboratory Experience
- C-8 Direct Students in Applying Problem-Solving Techniques
- C-9 Employ the Project Method
- C-10 Introduce a Lesson
- C-11 Summarize a Lesson
- C-12 Employ Oral Questioning Techniques
- C-13 Employ Reinforcement Techniques
- C-14 Provide Instruction for Slower and More Capable Learners
- C-15 Present an Illustrated Talk
- C-16 Demonstrate a Manipulative Skill
- C-17 Demonstrate a Concept or Principle
- C-18 Individualize Instruction
- C-19 Employ the Team Teaching Approach
- C-20 Use Subject Matter Experts to Present Information
- C-21 Prepare Bulletin Boards and Exhibits
- C-22 Present Information with Models, Real Objects, and Flannel Boards
- C-23 Present Information with Overhead and Opaque Materials
- C-24 Present Information with Filmstrips and Slides
- C-25 Present Information with Films
- C-26 Present Information with Audio Recordings
- C-27 Present Information with Televised and Videotaped Materials
- C-28 Employ Programmed Instruction
- C-29 Present Information with the Chalkboard and Flip Chart

Category D: Instructional Evaluation

- D-1 Establish Student Performance Criteria
- D-2 Assess Student Performance: Knowledge
- D-3 Assess Student Performance: Attitudes
- D-4 Assess Student Performance: Skills
- D-5 Determine Student Grades
- D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management

- E-1 Project Instructional Resource Needs
- E-2 Manage Your Budgeting and Reporting Responsibilities
- E-3 Arrange for Improvement of Your Vocational Facilities
- E-4 Maintain a Filing System

- E-5 Provide for Student Safety
- E-6 Provide for the First Aid Needs of Students
- E-7 Assist Students in Developing Self-Discipline
- E-8 Organize the Vocational Laboratory
- E-9 Manage the Vocational Laboratory

Category F: Guidance

- F-1 Gather Student Data Using Formal Data-Collection Techniques
- F-2 Gather Student Data Through Personal Contacts
- F-3 Use Conferences to Help Meet Student Needs
- F-4 Provide Information on Educational and Career Opportunities
- F-5 Assist Students in Applying for Employment or Further Education

Category G: School-Community Relations

- G-1 Develop a School-Community Relations Plan for Your Vocational Program
- G-2 Give Presentations to Promote Your Vocational Program
- G-3 Develop Brochures to Promote Your Vocational Program
- G-4 Prepare Displays to Promote Your Vocational Program
- G-5 Prepare News Releases and Articles Concerning Your Vocational Program
- G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
- G-7 Conduct an Open House
- G-8 Work with Members of the Community
- G-9 Work with State and Local Educators
- G-10 Obtain Feedback about Your Vocational Program

Category H: Student Vocational Organization

- H-1 Develop a Personal Philosophy Concerning Student Vocational Organizations
- H-2 Establish a Student Vocational Organization
- H-3 Prepare Student Vocational Organization Members for Leadership Roles
- H-4 Assist Student Vocational Organization Members in Developing and Financing a Yearly Program of Activities
- H-5 Supervise Activities of the Student Vocational Organization
- H-6 Guide Participation in Student Vocational Organization Contests

Category I: Professional Role and Development

- I-1 Keep Up-to-Date Professionally
- I-2 Serve Your Teaching Profession
- I-3 Develop an Active Personal Philosophy of Education
- I-4 Serve the School and Community
- I-5 Obtain a Suitable Teaching Position
- I-6 Provide Laboratory Experiences for Prospective Teachers
- I-7 Plan the Student Teaching Experience
- I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education

- J-1 Establish Guidelines for Your Cooperative Vocational Program
- J-2 Manage the Attendance, Transfers, and Terminations of Co-Op Students
- J-3 Enroll Students in Your Co-Op Program
- J-4 Secure Training Stations for Your Co-Op Program
- J-5 Place Co-Op Students on the Job
- J-6 Develop the Training Ability of On-the-Job Instructors
- J-7 Coordinate On-the-Job Instruction
- J-8 Evaluate Co-Op Students' On-the-Job Performance
- J-9 Prepare for Students' Related Instruction
- J-10 Supervise an Employer-Employee Appreciation Event

RELATED PUBLICATIONS

- Student Guide to Using Performance-Based Teacher Education Materials
- Resource Person Guide to Using Performance-Based Teacher Education Materials
- Guide to the Implementation of Performance-Based Teacher Education

For information regarding availability and prices of these materials contact—

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